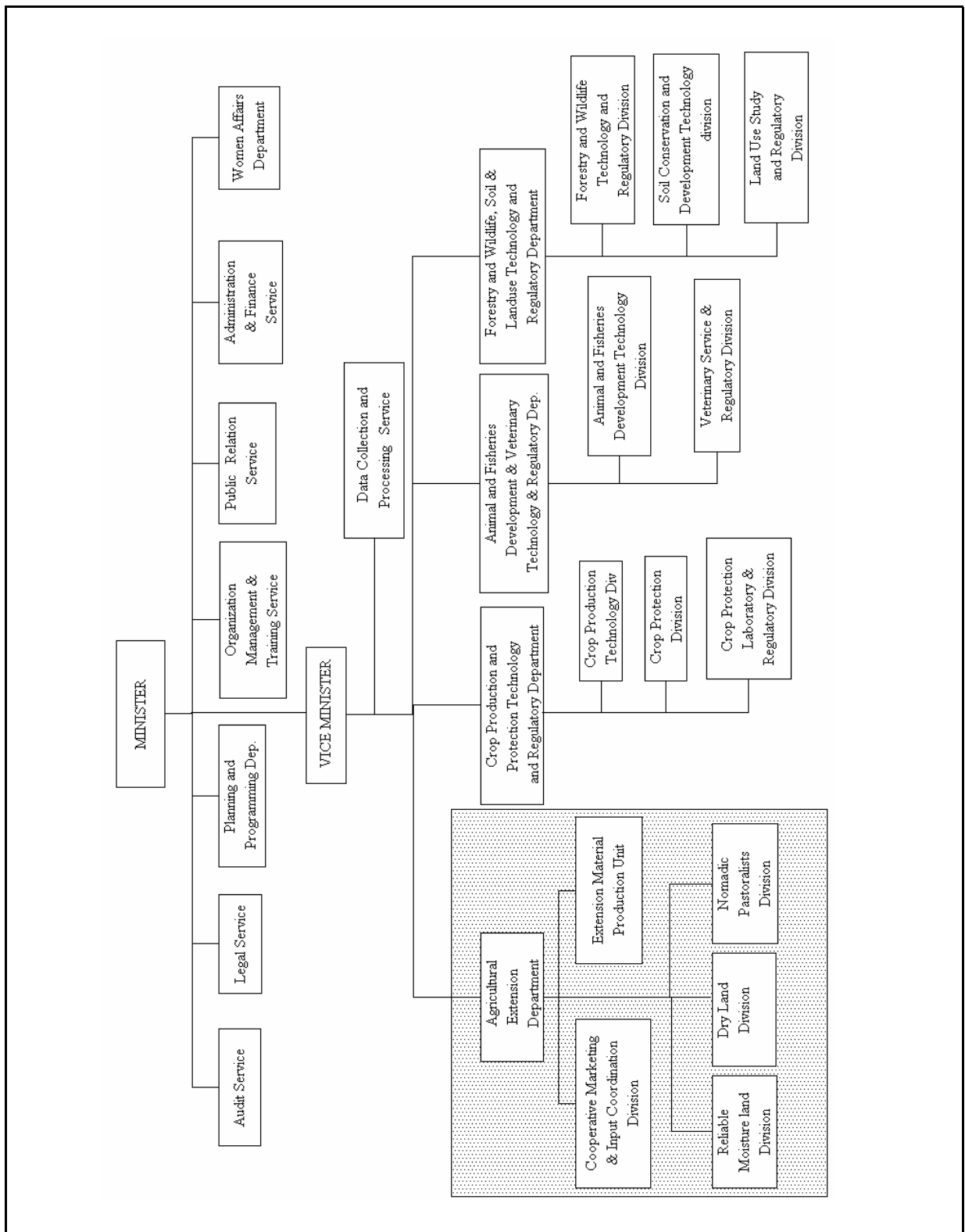


APPENDIX V  
AGRICULTURAL SUPPORT SYSTEM

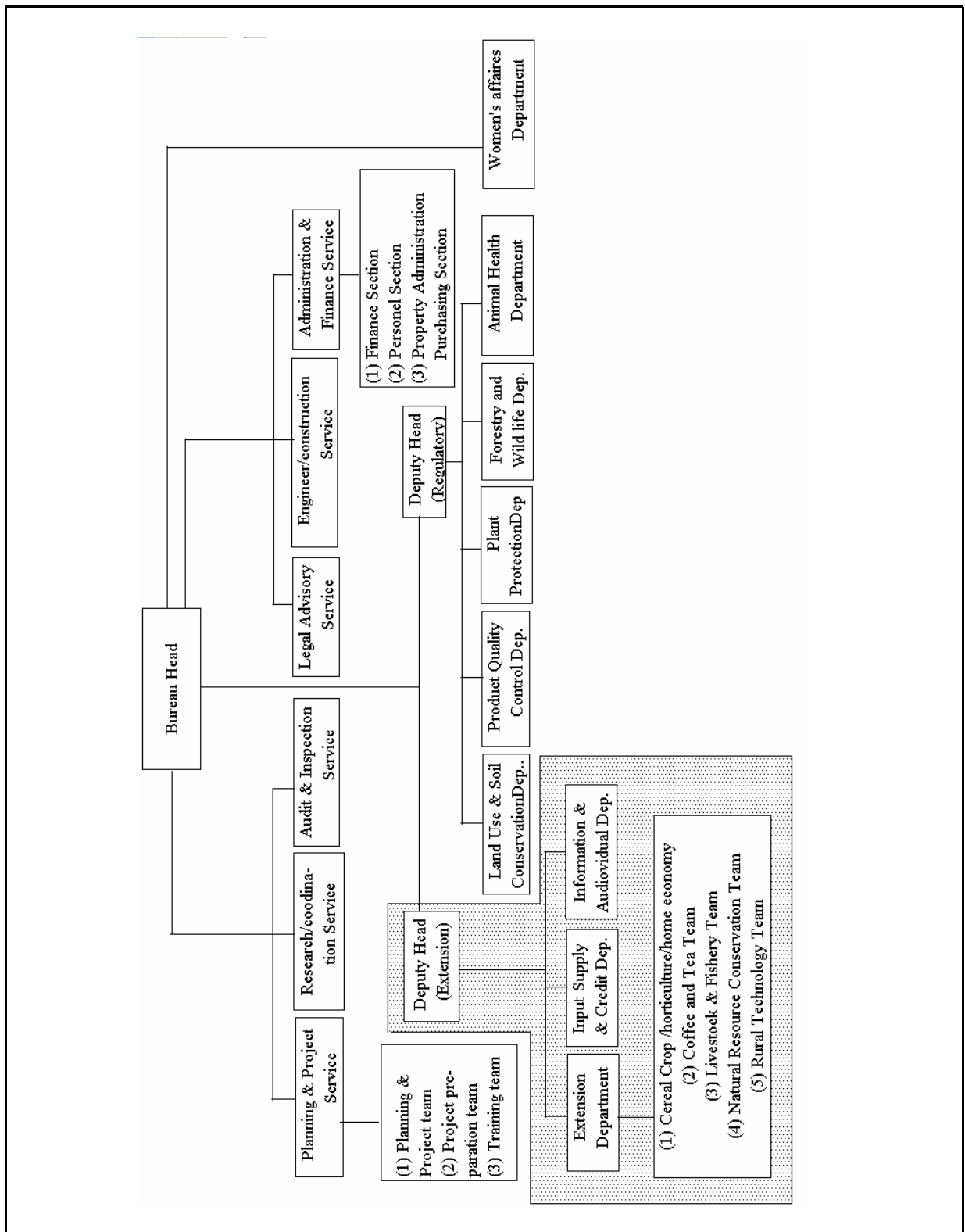
Figures



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Figure V.1.1  
 Organization Chart of Ministry of Agriculture

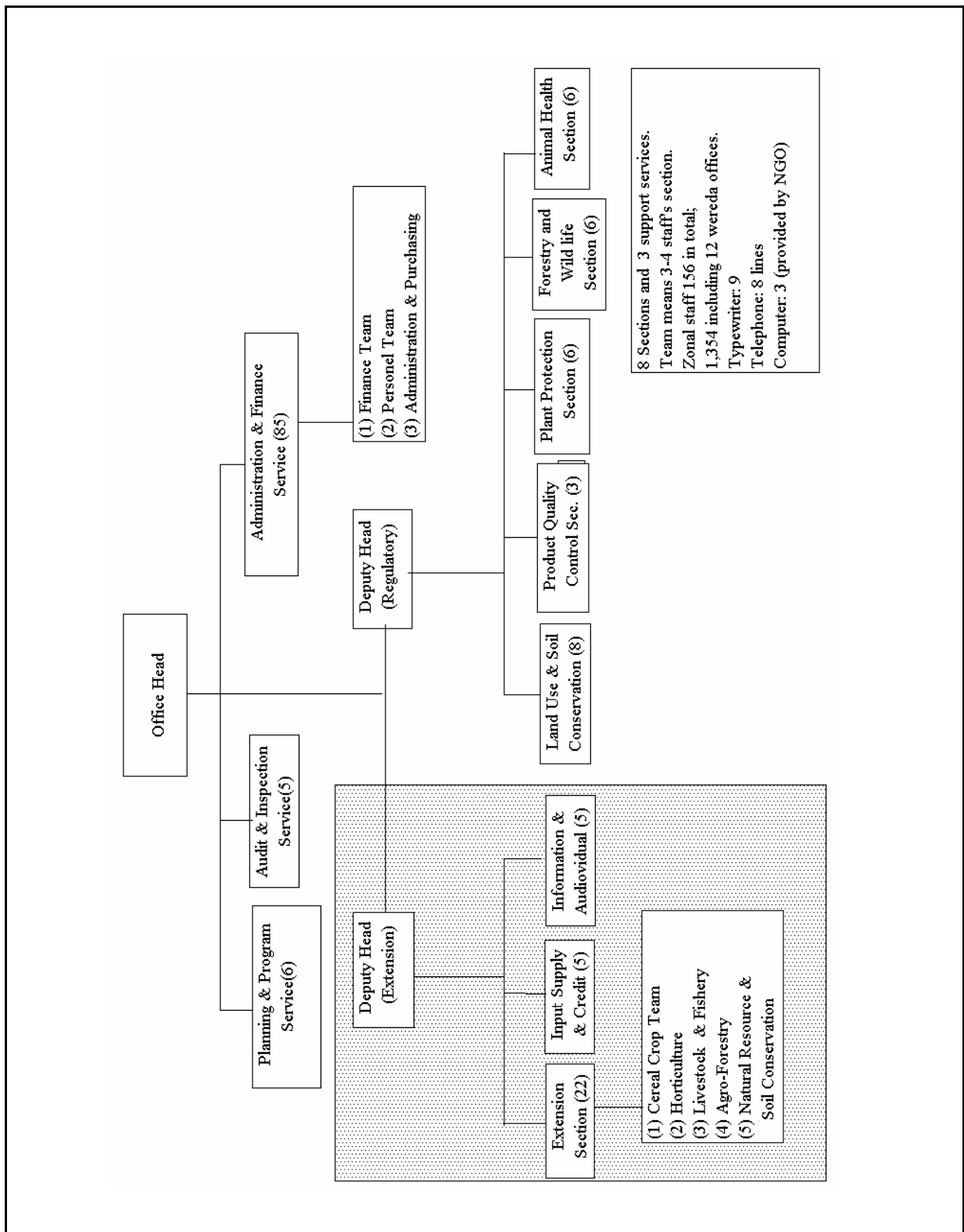


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Figure V.1.2

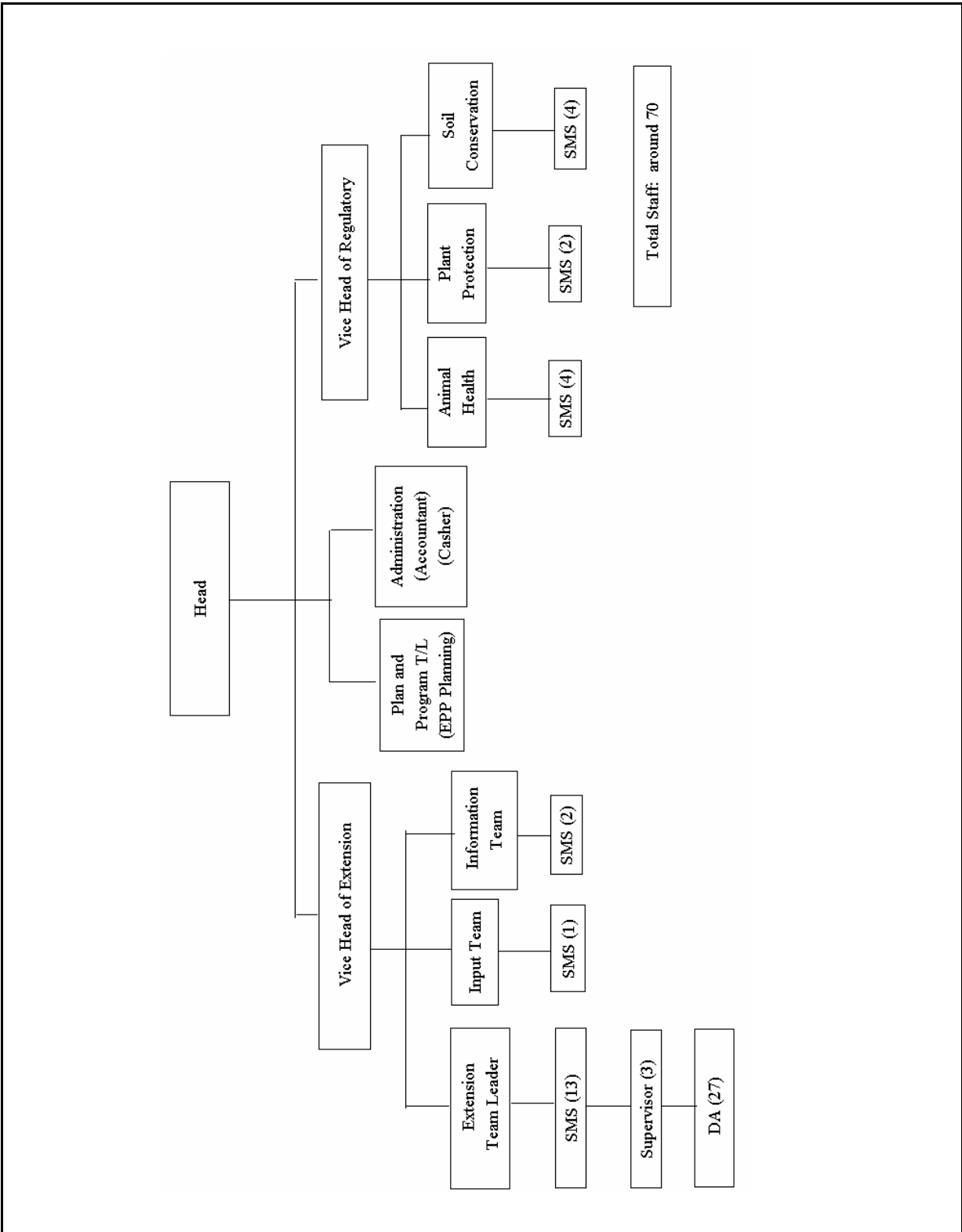
Organization Chart of Oromia Agricultural  
Development Bureau (OADB)



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 in Oromia Region, Ethiopia

Japan International Cooperation Agency

Figure V.1.3  
 Organization Chart of Zonal Agricultural  
 Development Department (Nazareth; East Shoa)

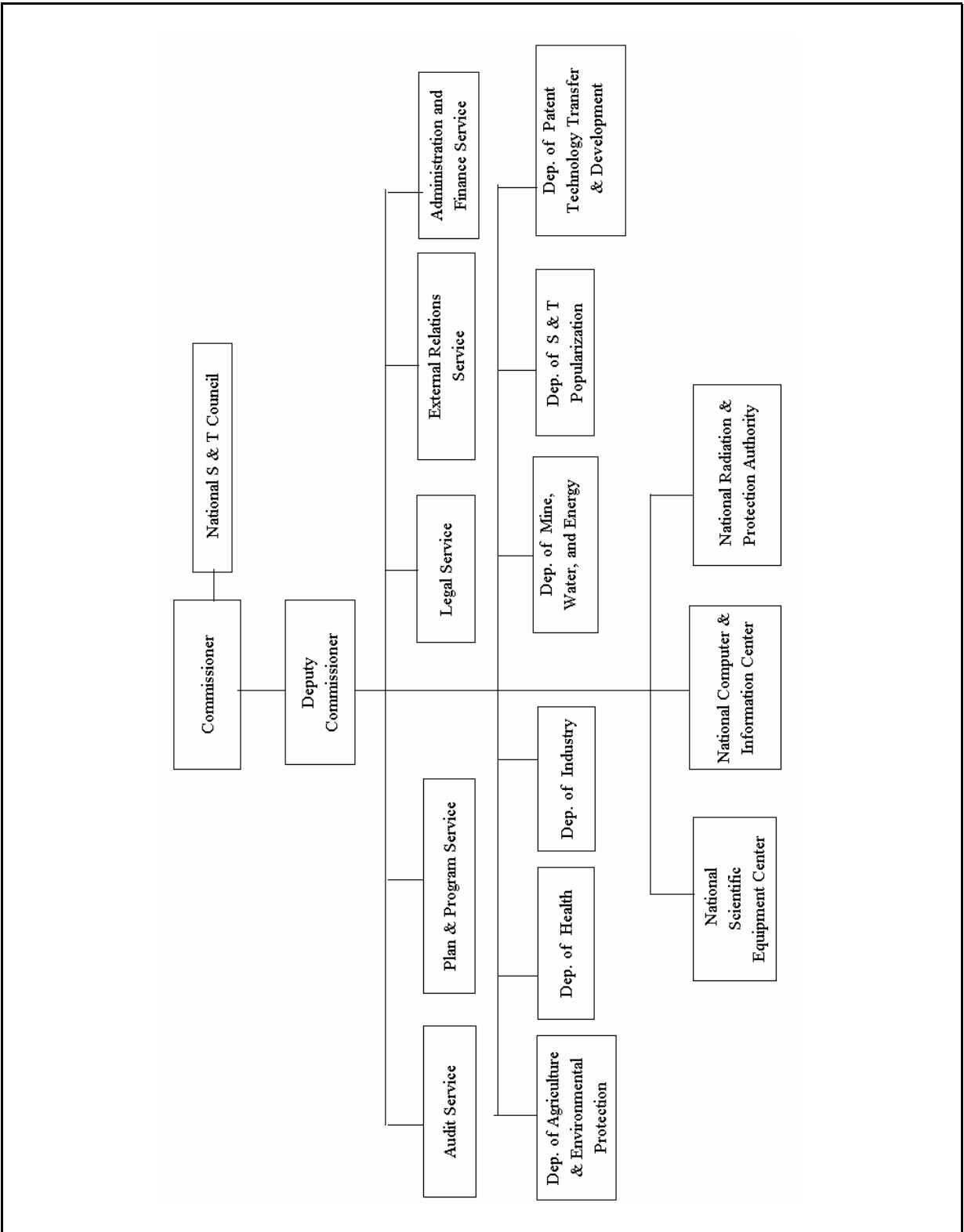


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 in Oromia Region, Ethiopia

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Figure V.1.4  
 Organization Chart of Dugda Bora Wareda  
 Agricultural Office

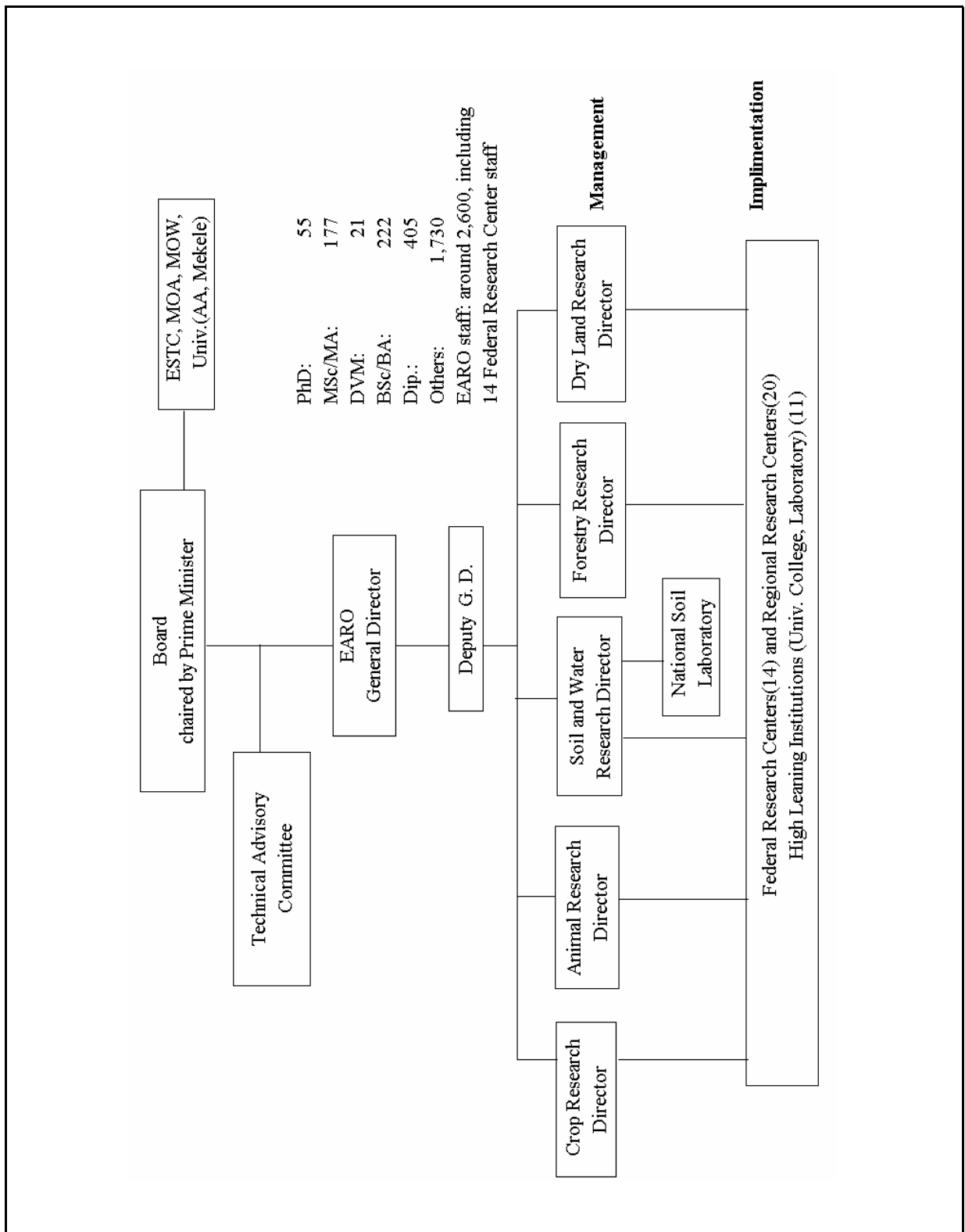


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Figure V.3.1  
 Organization Chart of Ethiopian Science & Technology Commission (ESTC)



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Figure V.3.2  
Organization Chart of Ethiopian Agricultural  
Research Organization (EARO)

*to avoid unnecessary duplication of efforts and subsequent wastage of resources*

### Structure

EARO is set up with an organizational structure that is appropriate to accomplish its duties. The structure is made up of the following major organs.

- Board
- Technical advisory counsel
- Director general
- Deputy director generals (one for research and the other for administration)
- Research directorates
- Research centers
- Research, technical and administrative staff

### Programs

Under the new organization, research programs come under the following directorates:

- crops
- animal science
- forestry
- soil and water management
- dryland agriculture

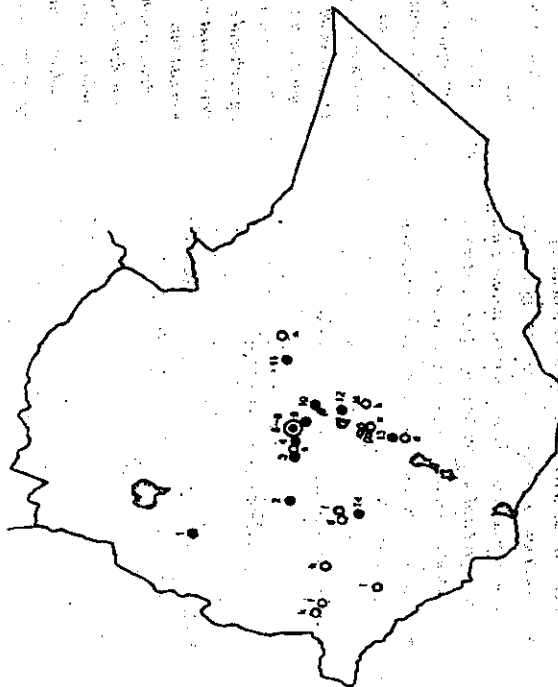
### Research Centers

The research centers fall under the following categories:

### Agroecologies identified for agricultural research

- ARID HOT TO WARM LOWLAND PLAINS**
  - Arid hot to warm plains
  - Arid hot to warm valleys and escarpment
  - Arid hot to warm mountains
- ARID TEMPERATE TO COOL MID HIGHLANDS**
  - Arid temperate to cool plains
  - Arid temperate to cool mountains
- SEMI-ARID HOT TO WARM LOWLANDS**
  - Semi-arid hot to warm plains
  - Semi-arid hot to warm lakes and rift valleys
  - Semi-arid hot to warm mountains and plateau
- SEMI-ARID TEMPERATE TO COOL MID HIGHLANDS**
  - Semi-arid temperate to cool lakes and rift valleys
- SUB-MOIST HOT TO WARM LOWLANDS**
  - Sub-moist hot to warm plains
  - Sub-moist hot to warm lakes and plateau
  - Sub-moist hot to warm mountains and plateau
  - Sub-moist hot to warm gorge
  - Sub-moist hot to warm mountains
- SUB-MOIST TEMPERATE TO COOL MID-HIGHLANDS**
  - Sub-moist temperate to cool plateau
  - Sub-moist temperate to cool lakes and plateau
  - Sub-moist temperate to cool mountains and plateau
  - Sub-moist temperate to cool mountains
- SUB-MOIST COLD TO VERY COLD**
- SUB-ALPINE TO ALPINE**
  - Sub-moist cold to very cold mountains
- MOIST HOT TO WARM LOWLANDS**
  - Moist hot to warm plains
  - Moist hot to warm lakes and rift valleys
  - Moist hot to cool valleys escarpment
  - Moist hot to warm gorge
  - Moist hot to warm mountains
- MOIST TEMPERATE TO COOL MID HIGHLANDS**
  - Moist temperate to cool plains
  - Moist temperate to cool lakes and rift valleys
  - Moist temperate to cool mountains and plateau
  - Moist temperate to cool plateau
  - Moist temperate to cool mountains
- MOIST COLD TO VERY COLD**
- SUB-ALPINE TO ALPINE**
  - Post mountains cold to very cold

### Research Center and Sub center



### Research sub centers

- a. Mieso
- b. Bekoji
- c. Arsinigelo
- d. Awada
- e. Ginchi
- f. Agaro
- g. Gera
- h. Metu
- i. Tepi
- j. Haro
- k. Mugji

### Research centers

1. Pawe
2. Bako (Maize)
3. Arbo Plant Protection
4. Hoiella
5. Forestry
6. National soils laboratory
7. Sebete Fisheries & Aquatic life
8. Animal Health
9. Debrezeit
10. Nazret (Meikassa)
11. Weren
12. Kulumsa
13. Awasa (Maize)
14. Jima (Meiko)

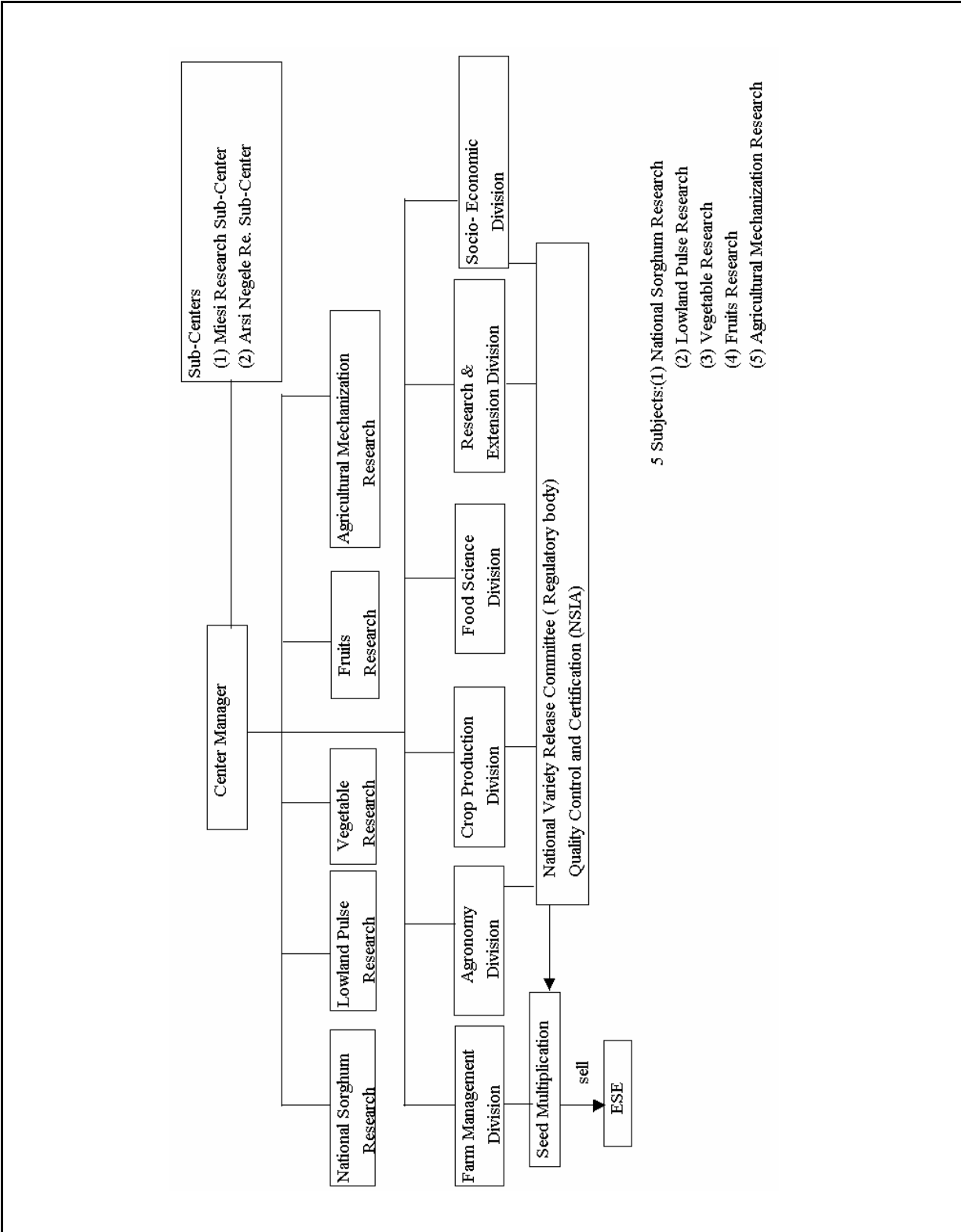
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Figure V.3.3

Location Map of Agricultural Research Centers in Ethiopia



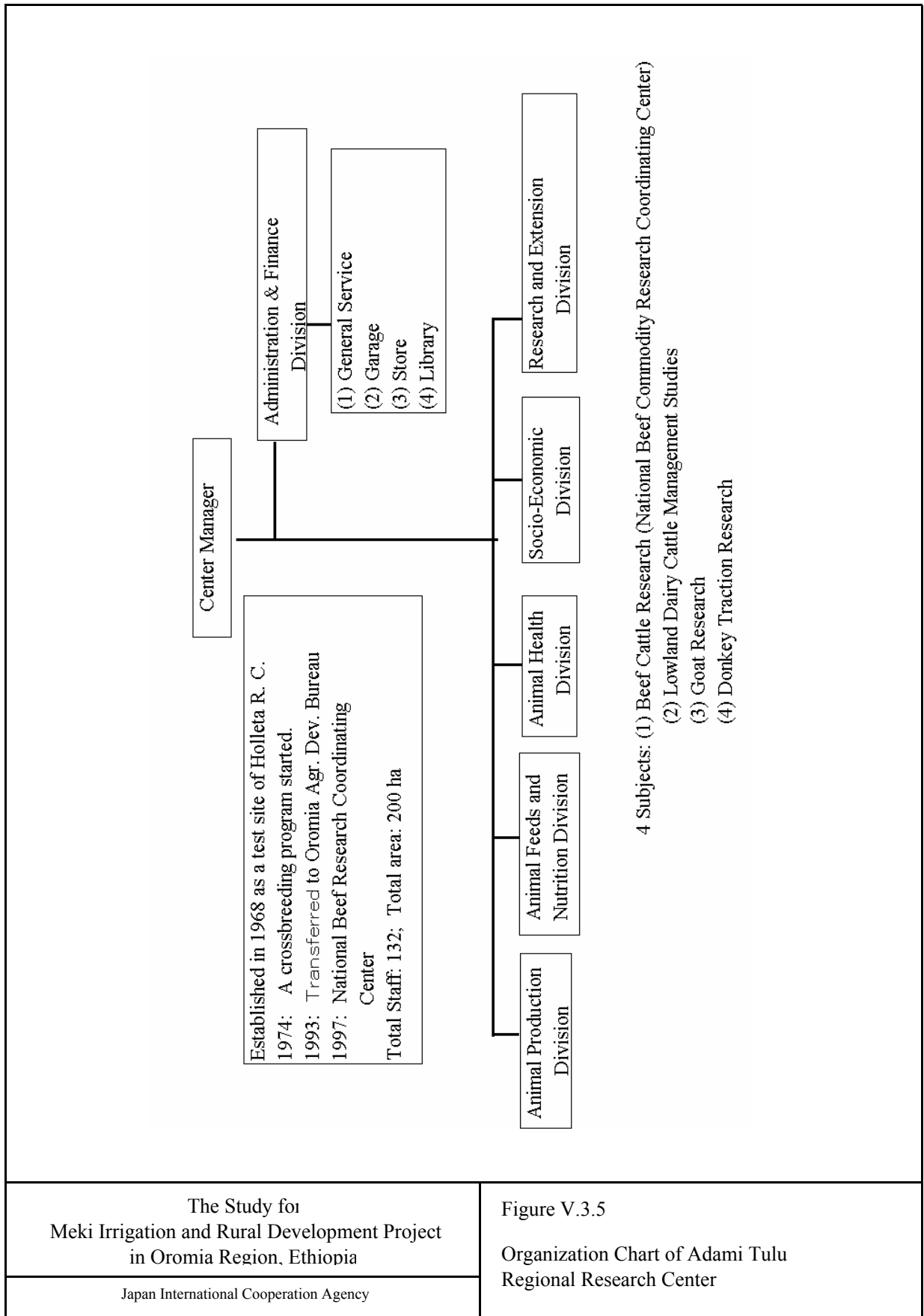


- 5 Subjects: (1) National Sorghum Research  
 (2) Lowland Pulse Research  
 (3) Vegetable Research  
 (4) Fruits Research  
 (5) Agricultural Mechanization Research

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Figure V.3.4  
 Organization Chart of Melkasa Research Center

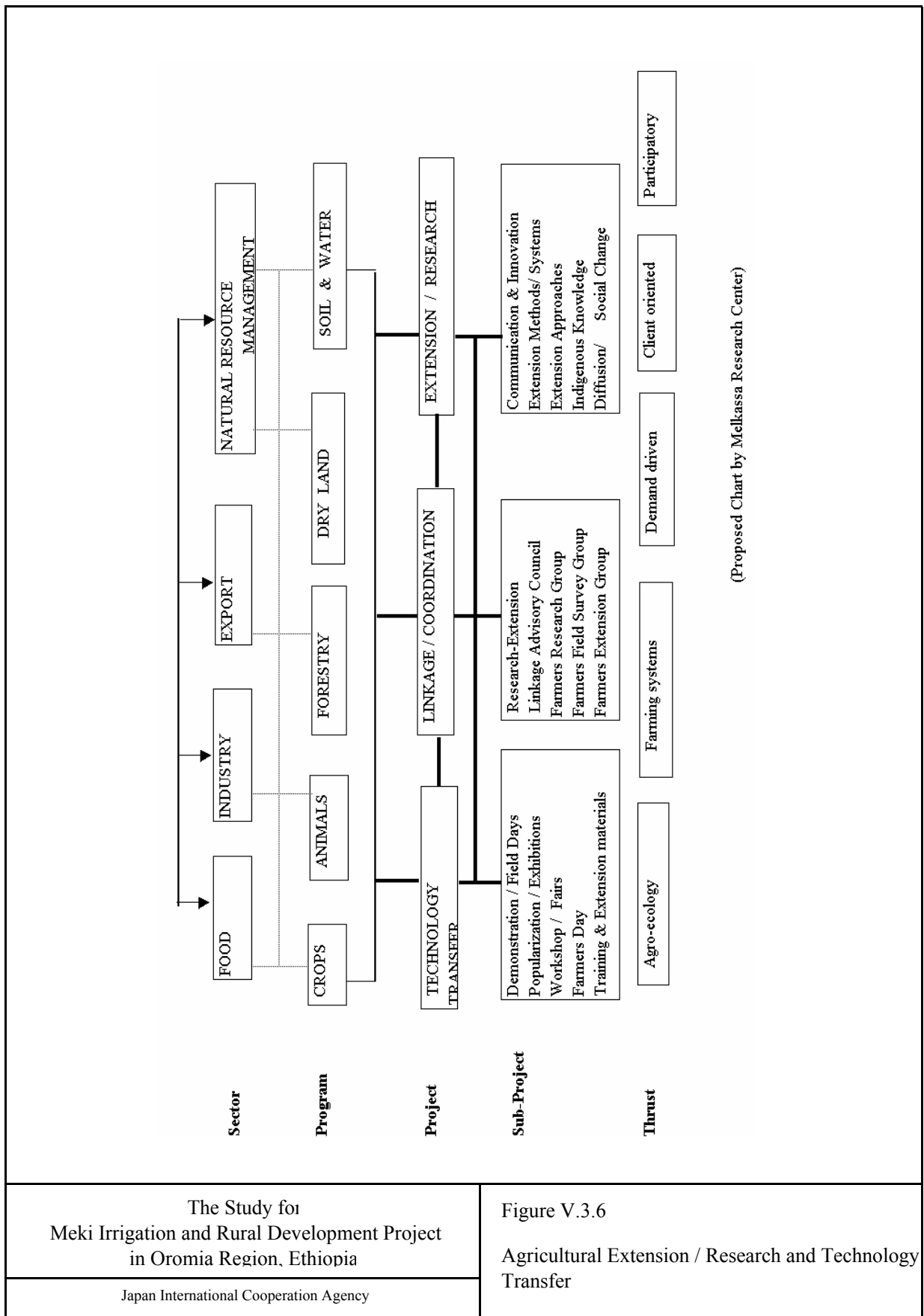


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Figure V.3.5  
 Organization Chart of Adami Tulu  
 Regional Research Center



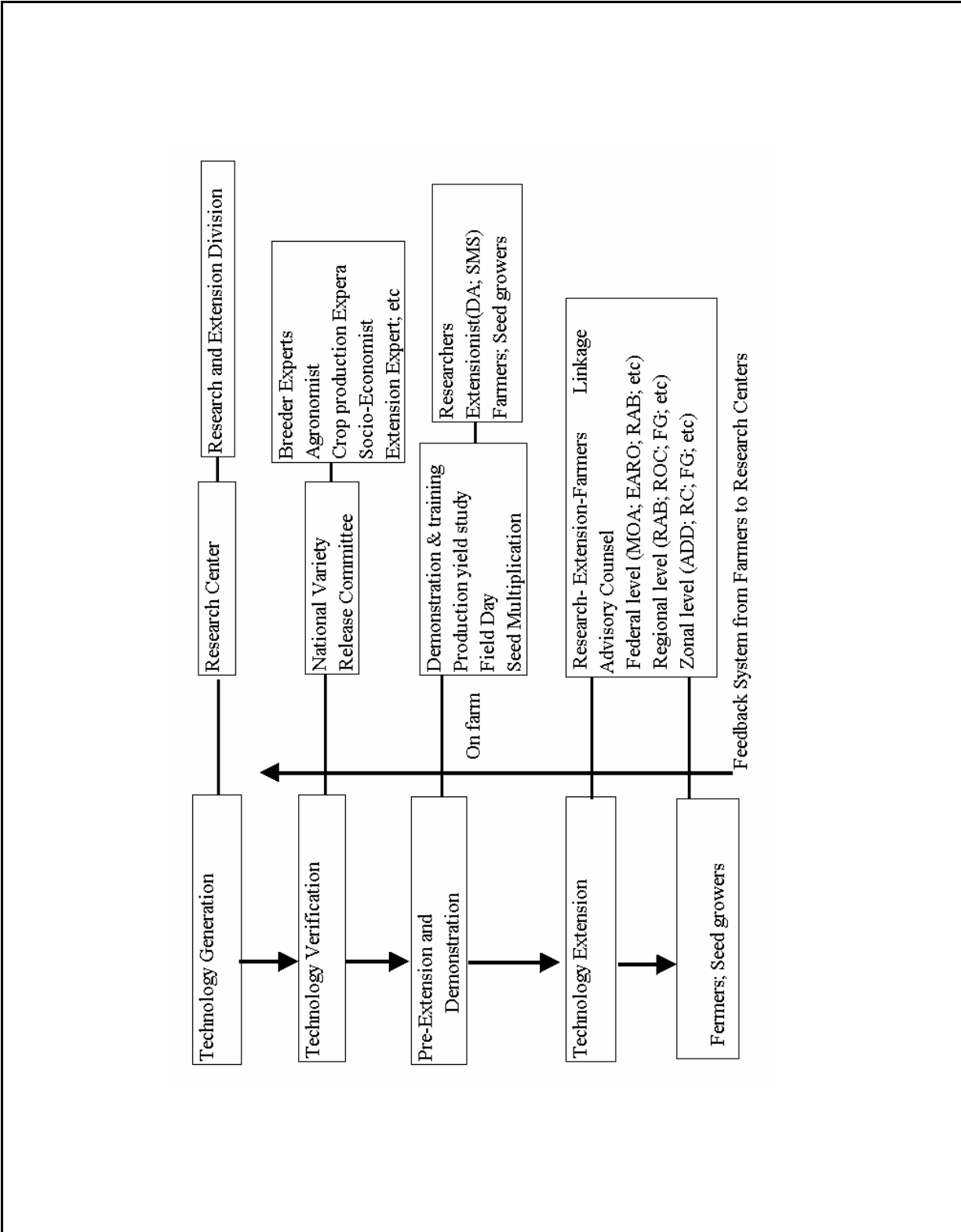
(Proposed Chart by Melkassa Research Center)

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Figure V.3.6

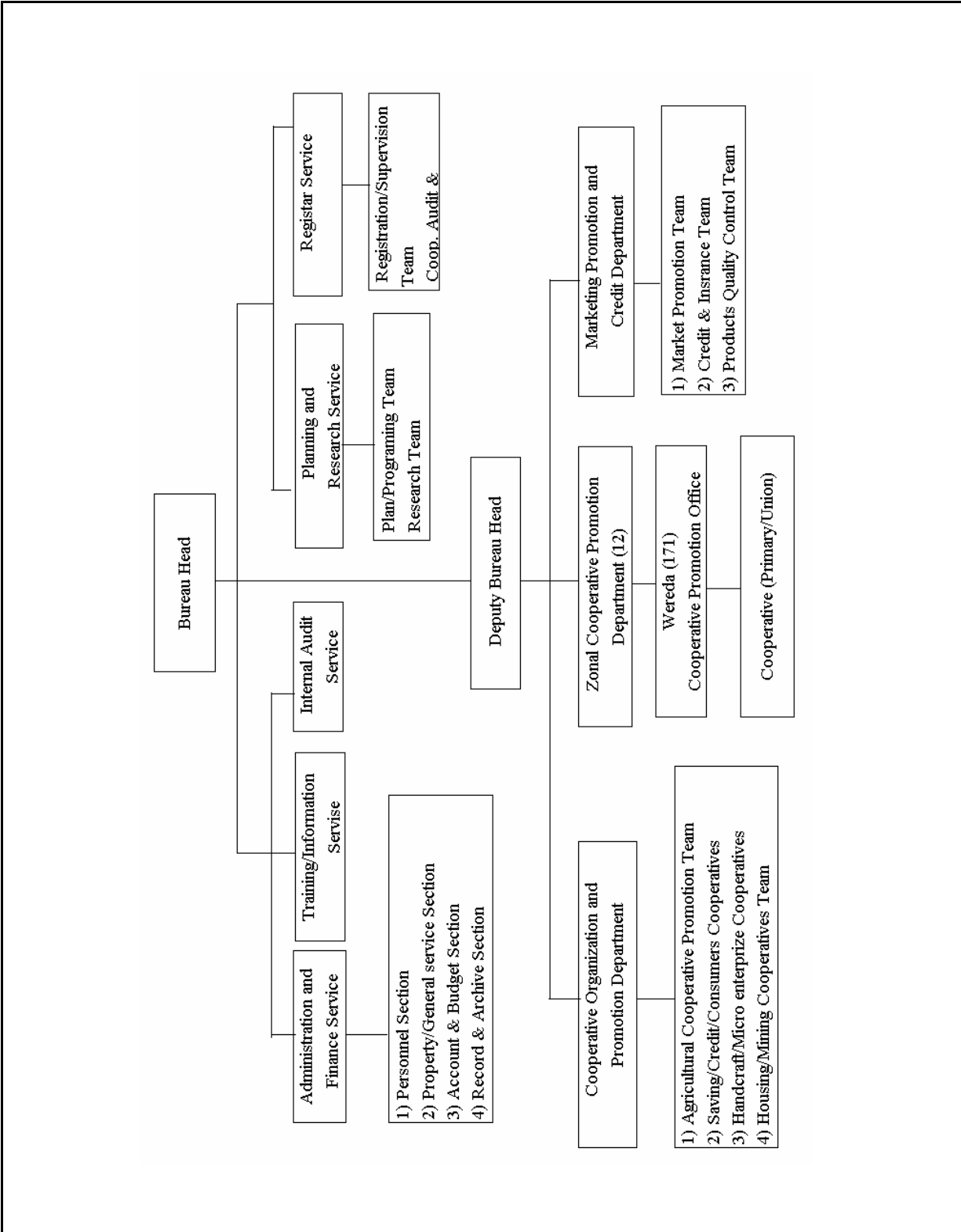
Agricultural Extension / Research and Technology Transfer



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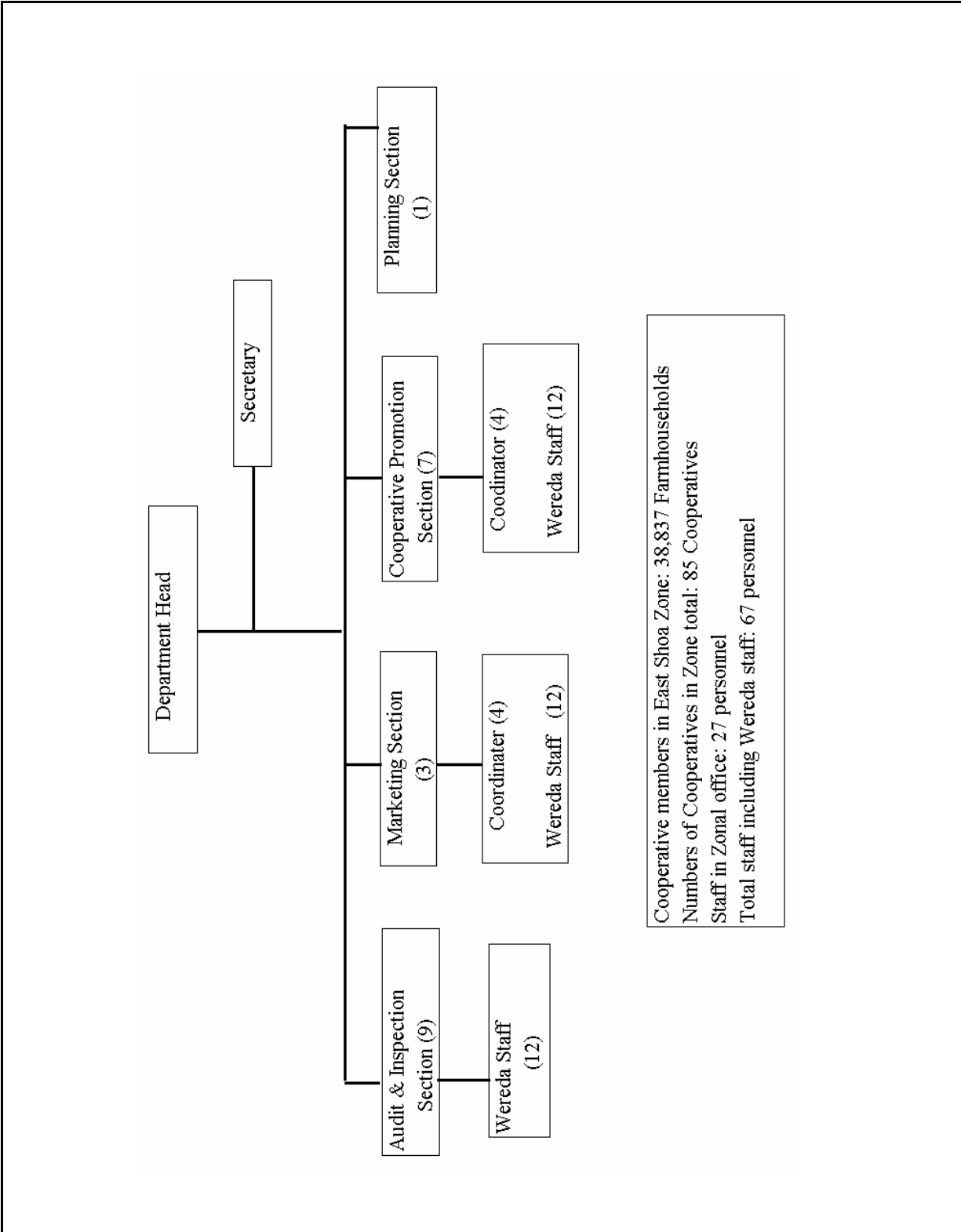
Figure V.3.7  
 Technology Generation and Transfer  
 System



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Figure V.4.1  
 Organization Chart of Cooperative  
 Promotion Bureau (Oromia Region)



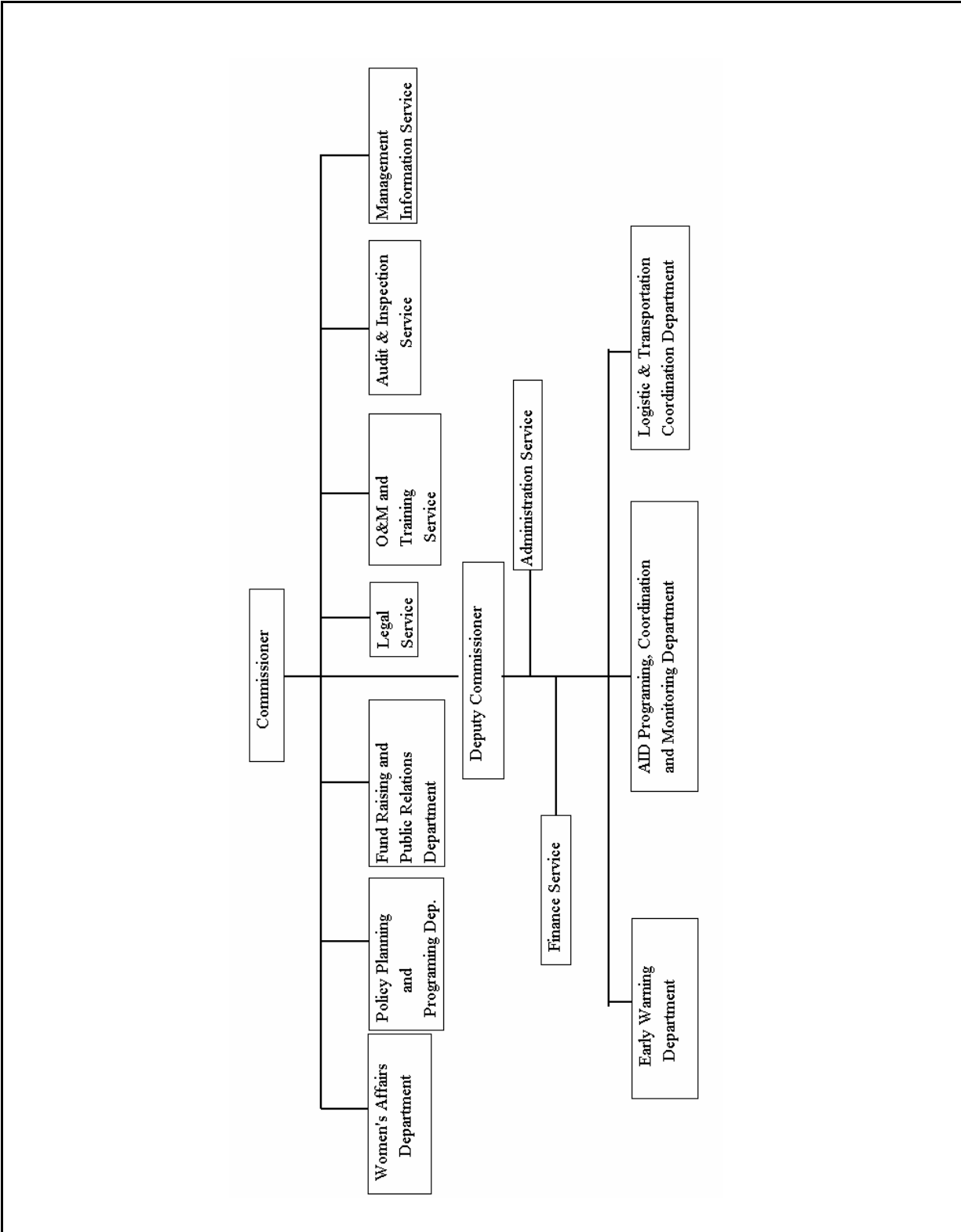
Cooperative members in East Shoa Zone: 38,837 Farmhouseholds  
 Numbers of Cooperatives in Zone total: 85 Cooperatives  
 Staff in Zonal office: 27 personnel  
 Total staff including Wereda staff: 67 personnel

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 Meki Irrigation and Rural Development Project  
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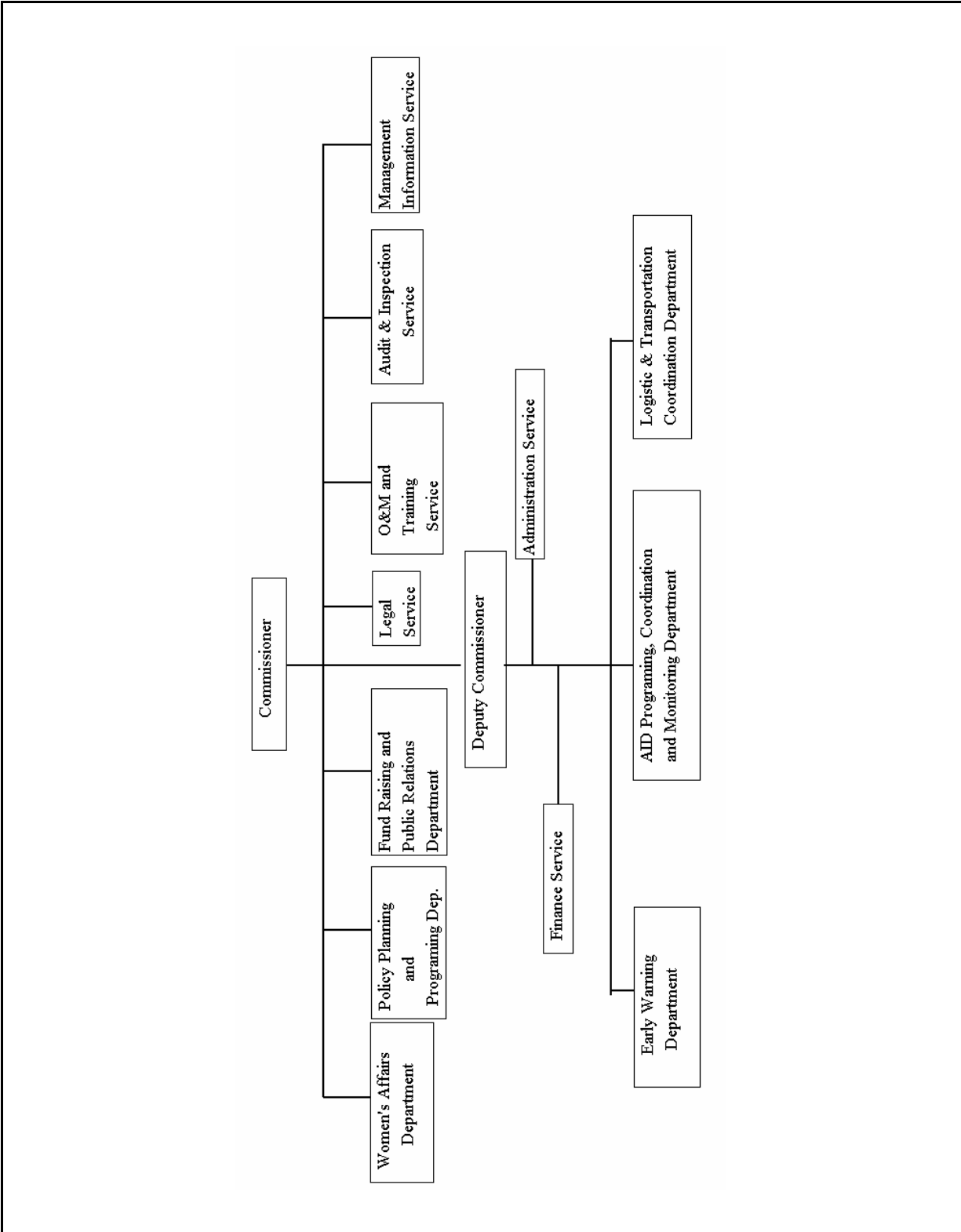
Figure V.4.2  
 Organization Chart of Zonal Cooperative  
 Promotion Department



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 in Oromia Region, Ethiopia

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Figure V.5.1  
 Organization Chart of Disaster Prevention  
 & Preparedness Commission (DPPC)

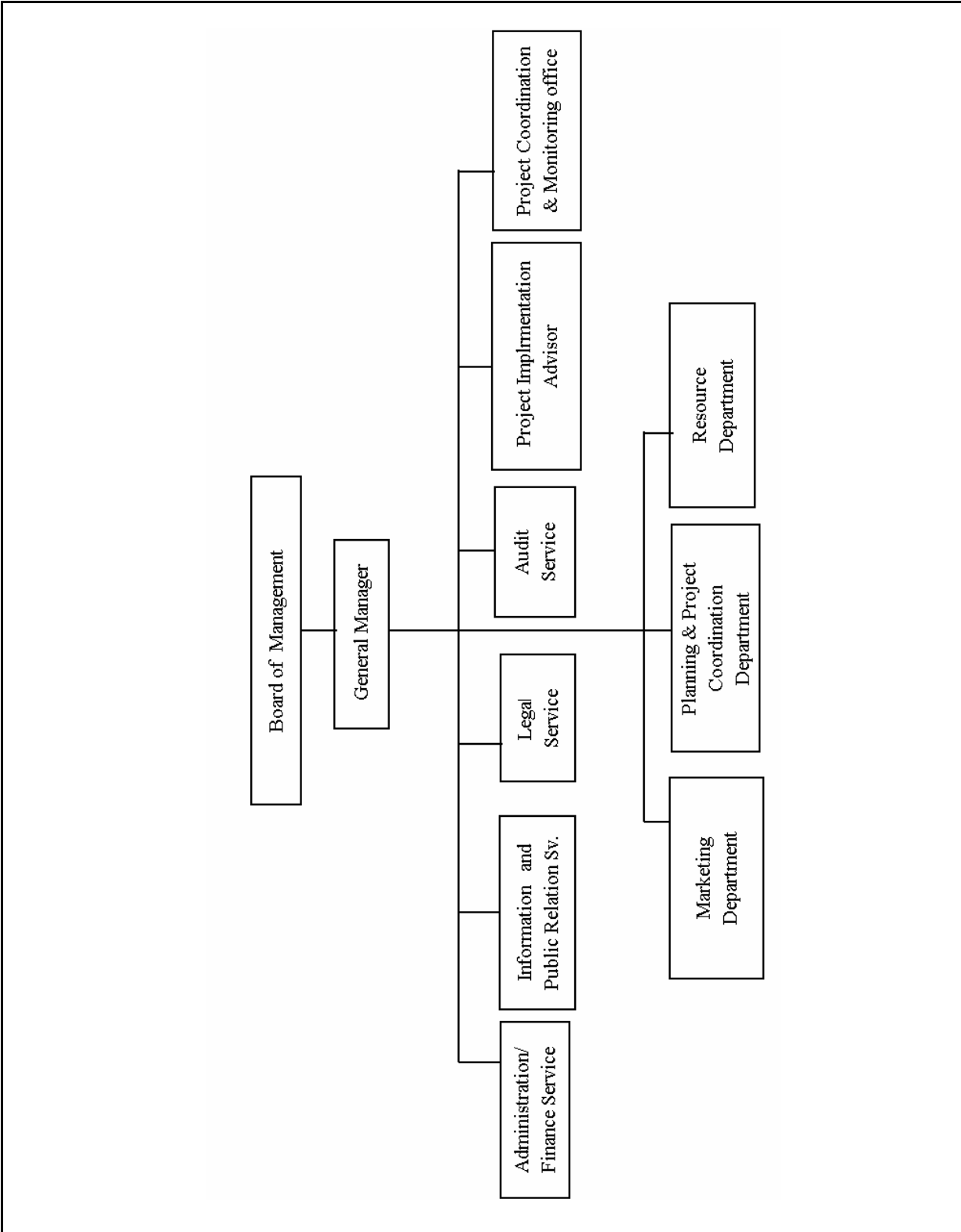


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Figure V.5.2  
 Organization Chart of Disaster Prevention  
 & Preparedness Bureau (Oromia Region)

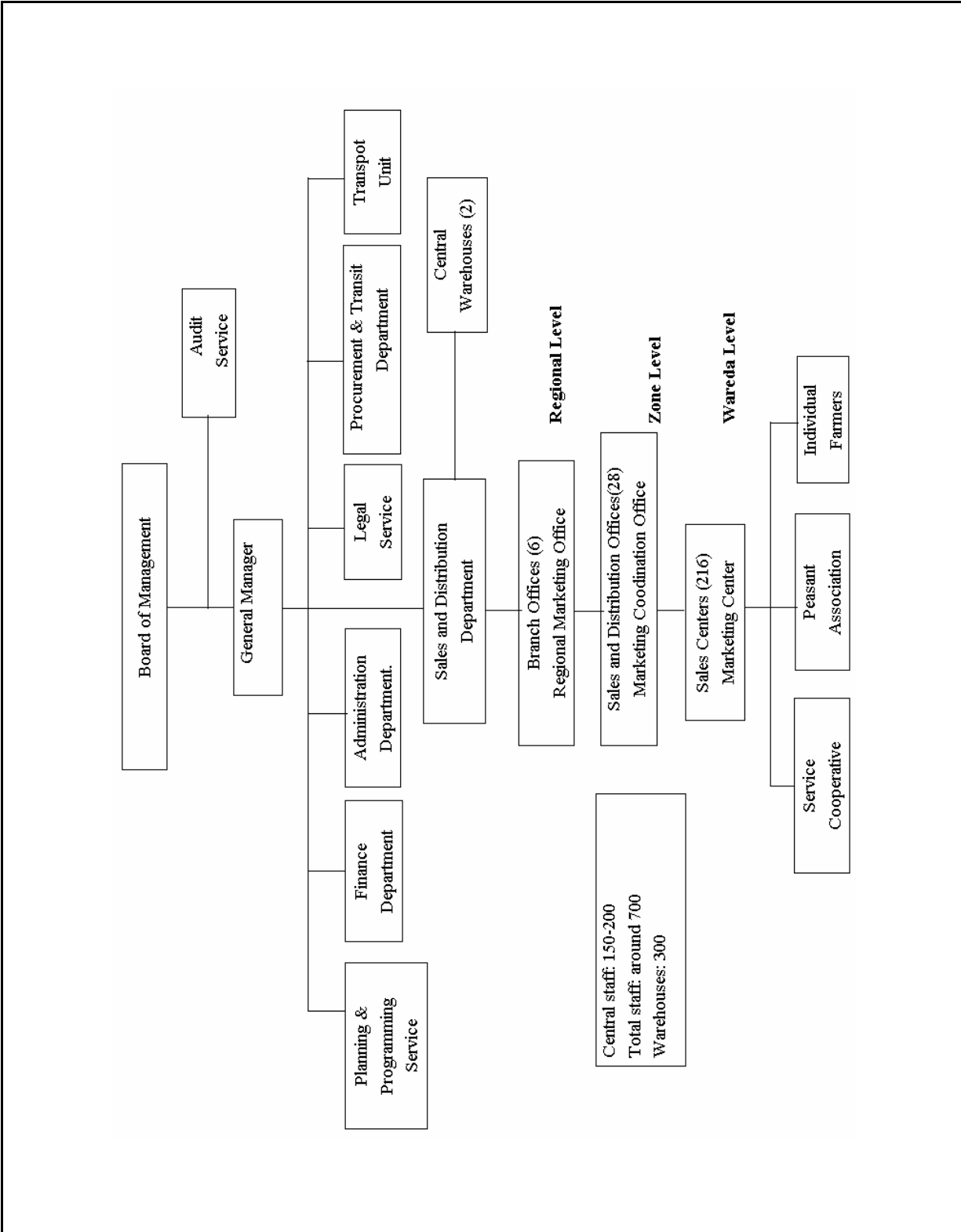




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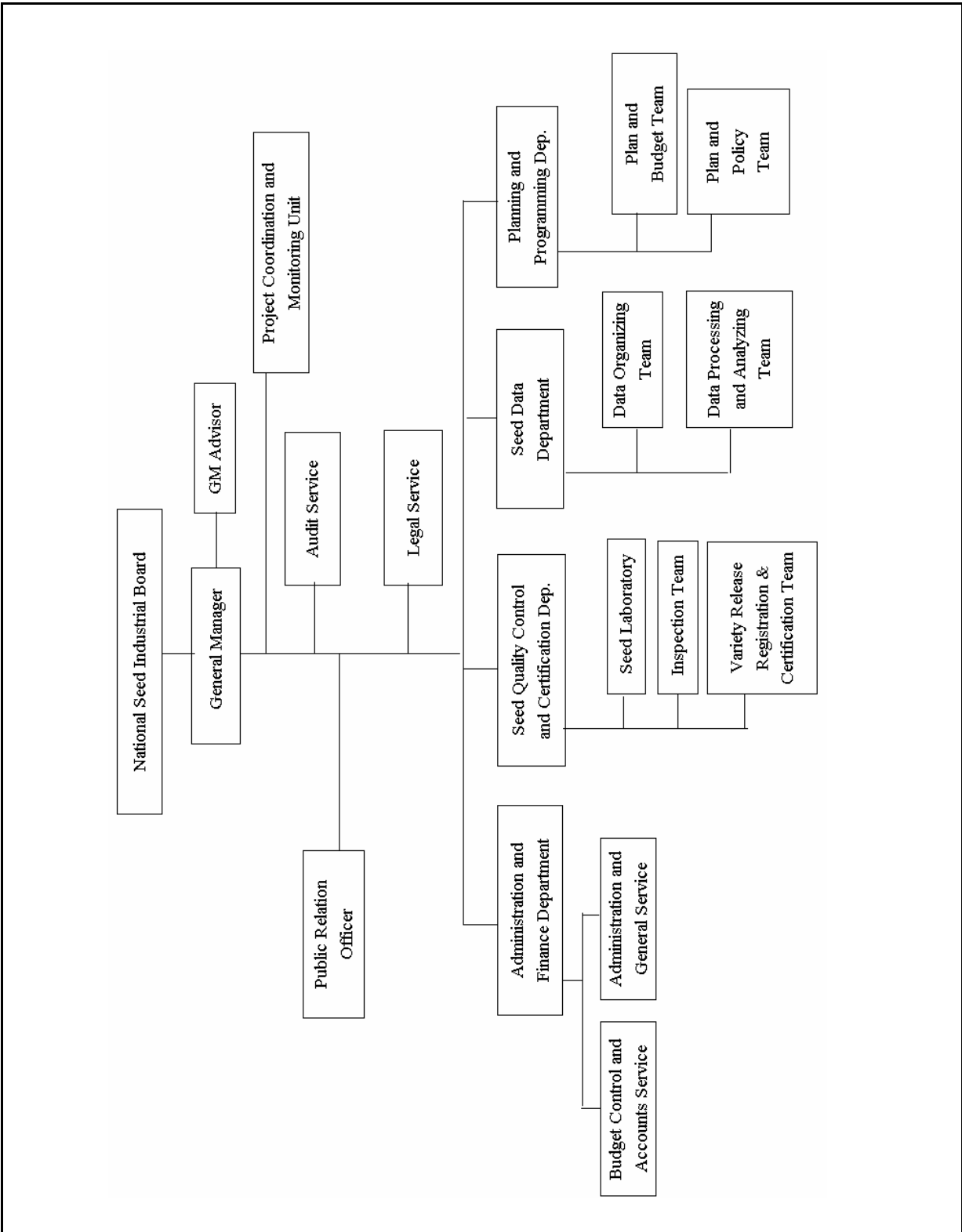
Figure V.6.1  
 Organization Chart of National Fertilizer  
 Industry Agency



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 Meki Irrigation and Rural Development Project  
 in Oromia Region, Ethiopia

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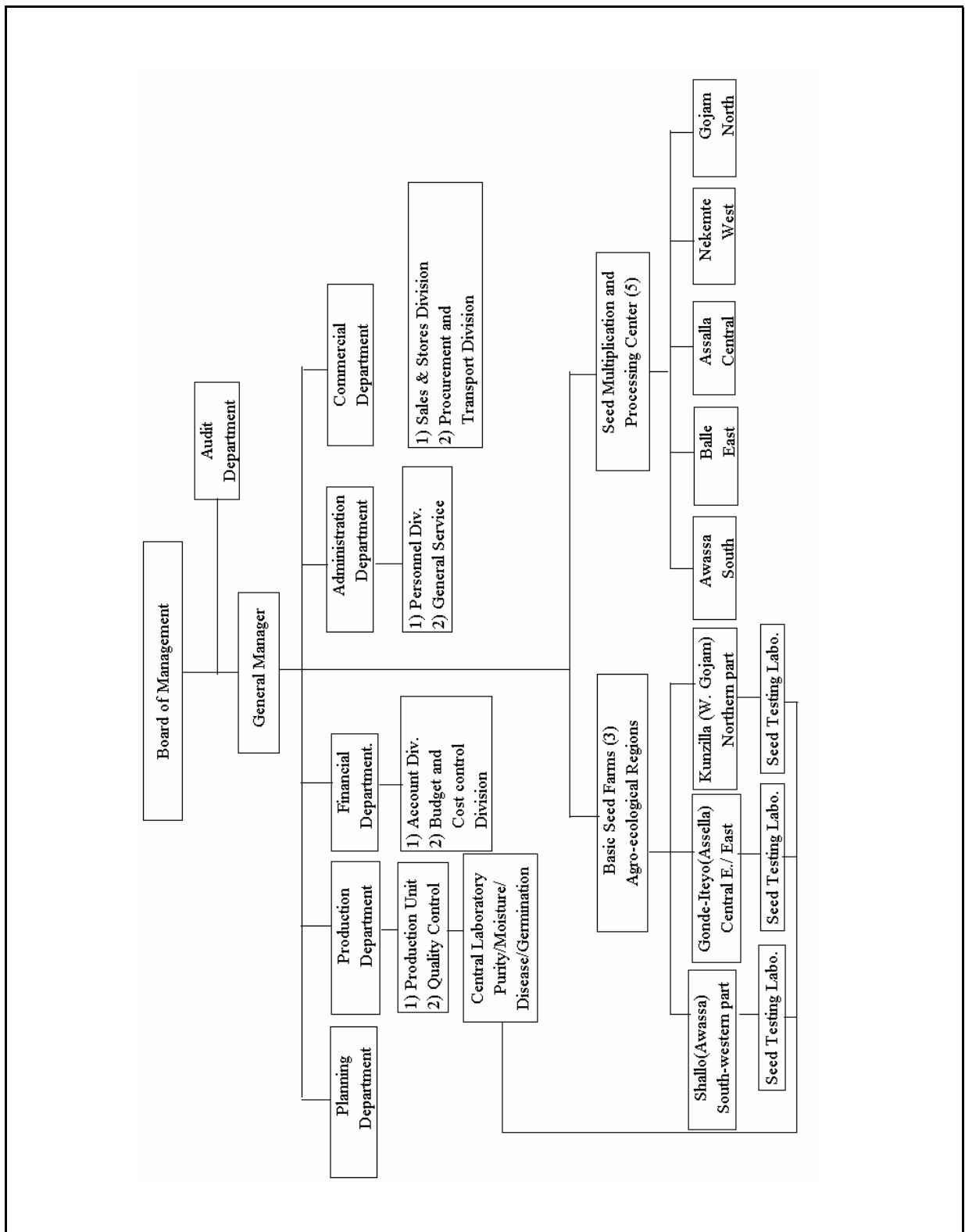
Figure V.6.2  
 Organization Chart of Agricultural Inputs  
 Supply Enterprise (AISE; AISCO)



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 in Oromia Region, Ethiopia

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Figure V.6.3  
 Organization Chart of National Seed Industry Agency



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in Oromia Region, Ethiopia

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Figure V.6.4  
Organization Chart of Ethiopian Seed  
Enterprise (ESE; ESCO)

APPENDIX V  
AGRICULTURAL SUPPORT SYSTEM

Attachments

## Farmers' Indigenous Social Networks for Local Seed Supply in Central Rift Valley

Dr. Aberra Deressa, Melkassa RC

Journal of Agricultural Education & Extension;V6,N4; Apr. 2000

### (1) Local seed supply at indigenous social networks

Estimates made by members of peasant associations in Ethiopia indicate that between 25 and 50% of farmers borrowed or bought seed of at least one crop season in any given year (1997). Although these chronic seed shortages are rarely addressed by the formal seed sector, in the problem of seed unavailability, farmers have largely been depending on local seed sources (farm-saved seed, other farmers, market, NGOs, relief organization, etc). It has to be noticed that NGOs and relief organizations have played an important role in emergency seed supply for survival during times of natural disasters or civil disorder in Ethiopia.

Farmer-to-farmer exchange of seed is based on indigenous social networks and family relations. The followings are some of the most important social networks practiced by farmers of different ethnic grounds in Ethiopia:

- 1) Co-rearing and co-sharing of livestock;
- 2) Rotating of credit schemes involving cash or material produce;
- 3) Lease farming for a share of the harvest by poor farmers;
- 4) Securing seed and/or grain in return for labor provided for others;
- 5) Mutual exchange of family labor during heavy work schedules; etc.

These indigenous social networks are perhaps reinforced by the most significant traditional institution called “**Edir**”. It serves as a platform for members of the **edir** to inform each other about recent development and other emerging issues in farming and social affairs. Within this traditional institution farmer-to-farmer exchange of seeds is effected in form of bartering, gift, borrowing and of course, on sale. There is no restriction in the exchange of seeds and information among members of same or different **edirs**.

### (2) Comparison of the formal vs local seed sector

| Factor                         | Formal seed sector                                       | Local seed sector  |
|--------------------------------|--|--|
| Farmer participant             | Seed receiver  | Seed selector, producer, owner/supplier                      |
| Means of seed exchange         | On sale, credit  | On sale, credit, bartering, gift                             |
| Speed and range                | Relatively fast, reaches more covers wide area at a time | Slow pace, reaches less farmers, covers small area at a time |
| Seed quality/genetic diversity | Pure, certified, uniform                                 | Less pure, uncertified, genetic diverse                      |
| Seed availability              | Unavailable, mostly delay                                | Available in limited quantities                              |
| Seed cost                      | Expensive  | Relatively cheap   |
| Adaptability                   | Less known to farmers in extension weak area             | Well know, confidential use Familiar with supplier           |
| Limitation                     | Reduce crop diversity But less affected by drought etc.  | Easily affected by drought disorder, etc.                    |

**(3) Case study on local seed exchange**

|                         |   |
|-------------------------|---|
| Objective               | : To evaluate the role of indigenous social networks in local seed supply   |
| Component of assessment | : The dissemination of Awash seed from seed growers to local grain producers and local exchange methods.  |
| Duration                | : 1995-1997   |
| Location                | : 9 sub-districts (wereda) in the central rift valley   |
| Seeds                   | : 25 kg of <b>breeder's seed</b> of new released haricot bean (Awash) / each  |
| Sample farmers          | : 80 farmers from 20 PAs (random sampling)  |
| Training of farmers     | : Before seed distribution, training was given to seed growers on the subject; proper application on crop cultivation, seed selection and storage practices, etc. |

The seed growers (80 farmers) have multiplied a total of 25,310 kg of clean Awash seed from 2,000 kg of breeder's seeds with 20 ha of fields in 1995 and 1996, as follows:

**Quantity of Haricot Beans (Awash) Multiplied by Seed Growers in 1995 and 1996**

| Site/sub-district | Farmers<br>(No.) | Area/each<br>(ha) | Total area<br>(ha) | Multiplied seeds<br>(kg) | Mean/grower<br>(kg) |
|-------------------|------------------|-------------------|--------------------|--------------------------|---------------------|
| Adama             | 8                | 0.25              | 2.00               | 2,305                    | 288 kg              |
| Dodota            | 6                | 0.25              | 1.50               | 1,590                    | 265                 |
| Boset             | 7                | 0.25              | 1.75               | 1,830                    | 261                 |
| Shashamane        | 9                | 0.25              | 2.25               | 3,204                    | 356                 |
| Lume              | 7                | 0.25              | 1.75               | 1,720                    | 246                 |
| Siraro            | 13               | 0.25              | 3.25               | 4,025                    | 310                 |
| <b>Dugda Bora</b> | <b>11</b>        | <b>0.25</b>       | <b>2.75</b>        | <b>3,046</b>             | <b>277</b>          |
| Jido              | 5                | 0.25              | 1.25               | 1,781                    | 356                 |
| Adami Tulu        | 14               | 0.25              | 3.50               | 5,859                    | 415                 |
| Total             | 80               | 0.25              | 20.00              | 25,310                   | 316                 |

**Marketing / Exchanging of Produced seeds and Seed Transfer**

| Seed utilization | Quantity | Total % | Network type        | Seed growers | %     |
|------------------|----------|---------|---------------------|--------------|-------|
| Marketed         | 16.0     | 63 %    | Neighborhood        | 64           | 62 %  |
| Reserved         | 2.8      | 11%     | Friendship          | 27           | 26%   |
| Exchanged        | 6.5      | 26%     | Members of relative | 12           | 12%   |
| Total            | 25.3     | 100 %   |                     | 103          | 100 % |

**Farmers' Seed Exchange Methods by Social Networks**

| Type of             | No. of seed growers who transferred seeds to others in methods |      |          |      |       |
|---------------------|--|------|----------|------|-------|
| Social network      | Lend   | Sell | Exchange | Gift | %     |
| Neighborhood        | 33   | 21   | 8        | 2    | 62%   |
| Friendship          | 17   | 7    | 3        | -    | 26%   |
| Members of relative | 9  | 2    | -        | 1    | 12%   |
| Total %             | 57%  | 29%  | 11%      | 3%   | 100 % |

In most cases direct lending and selling were commonly practiced between seed growers and their neighbors. About 19% of interviewed seed growers have exchanged haricot bean(Awash) with maize seed on 1:2 ratio when planting of maize is delayed due to a late on-set of rain. It was observed that farmer-to-farmer seed exchange was found more efficient in neighborhoods than on either friend or family relation-based type of social network. Lending was recorded as the most efficient method for transferring seeds from seed growers to their neighbors. This means that farmers can obtain seeds from neighbors trustfully on credit without cash in hand.

Local systems of seed supply through indigenous social networks and exchange methods ensures that all the farmers with varying socio-economic status in local seed systems are the beneficiaries. Moreover, farmers know the adaptability and quality of seeds; they have confidence and familiarity with suppliers.

It is always easier to deal with a collective producer than with scattered individual farmers for reason of logistic alone. In this regard, the role of extension needs to be redefined which should be centered around mobilizing/organizing farmers, enhancing in situ conservation and ensuring institutional linkage. It is therefore recommendable for farmers' indigenous social networks to undergo institutional transformation in order to capacitate the complementary role of the local seed systems in the development of a national seed industry.

(Summary of the report)



## **Research-Extension-Farmer Linkage Strategy**

### **Draft Proposal in August 1998**

#### **1. Background**

- 1970 Farming System Research(FSR) program by IAR(Institute of Agricultural Research) was initiated to identify production constraints.
- 1974 The first establishment of a joint program aiming at research-extension-farmer linkage was carried out by IAR/EPID(Extension Project Implementation Department of MOA) outreach program, mainly for package testing and formulation of recommendations to some specific areas.
- 1984 FSR program was expanded to main research centers with technical assistance from CIMMYT and financial support from IDRC, and later of a World Bank loan.
- 1985 IAR established a Research-Extension Division(RED) to strengthen the research-extension-farmer linkage with financial assistance of WB. RED played an important role in disseminating research findings to DA (Development Agents) and SMS(Subject Matter Specialists) working in the mandate zones of each research center.
- 1986 Research and Extension Liaison Committee(RELC) was established at both Zonal and National levels. In the zonal level, Peasant Agricultural Development and Extension Project(PADEP; abolished in 1989) zones reorganized into RELC, forming research center based RELC. Zonal RELC was responsible to research proposals/ extension recommendations, while the national RELC was responsible to provide overall policy direction and capacity building.
- 1995 Establishment of Federal Democratic Republic of Ethiopia (FDRE): the Gov. formulated an agriculture-based development program launching an aggressive nationwide extension scheme, needed more linkage with research.
- 1995 Regional research centers were established by respective regional governments
- 1997 Ethiopian NARI (National Agricultural Research Institute) restructured to form EARO to generate, develop and adapt agricultural technologies with the coordination of all the research centers to build up research capacity, to establish an efficient system both on research and extension, and to popularize agricultural research results.

#### **2. Gap Analysis in 1998**

- 1) The linkage strategy has to be properly defined, well formulated, and institutionalized. In the marketing channel of farm input distribution by agency / institutions, well coordinated activity with the linkage involvement is needed.

- 2) Farmers participation in research and extension is at low level, and a dynamic study on sociological / behavioral aspects in the technology development and transfer is not much attempted.
- 3) Staff and budget for efforts of the linkage and the institutional involvement were inadequate.
- 4) Exploration on agro-ecological approach, different farming systems, and indigenous knowledge, particularly in dry land agriculture, livestock, agro-forestry and natural resource conservation, should be more addressed. Technology generation and verification activities in these areas are poor.
- 5) Development and delivery system on effective technology in agriculture is required in quantity and quality. In order to ensure the research-extension-farmer linkage, publishing of pamphlets, materials, documents, reports etc. on technological information should be strengthened.
- 6) Extension method of linkage should be assessed by proper follow-up, monitoring and evaluation. Linkage activities are mostly conducted on *ad hoc* basis.
- 7) Formulation of recommendation is difficult as information on recommended research findings are scattered across research centers and disciplines.
- 8) Incentive mechanisms for staff involved in research, extension, and multiplication activities are not considered.
- 9) Communication gap and knowledge gap among researchers, extension workers, and farmers, should be taken much more into consideration.
- 10) Gender issues are not well documented, and also how these issues affect the research-extension-farmer linkages is not fully explored.

### **3. Proposed Linkage Strategies**

Both institutional and functional frameworks of research-extension-farmer linkage are considered, since the organization of the regional and federal research and extension systems allow the launching of both approaches. The Research-Extension-Farmer Linkage Advisory Councils will be established at three levels: federal, regional, and zonal. The zonal advisory council will be prepared as “Research Center-Based Council” in each zone. These advisory councils will have a legal status with duties and obligations. Memorandum of Understandings shall be signed between EARO and Regional Agricultural Bureau, as well as EARO and MOA.

#### **1) Federal Research-Extension-Farmers Linkage Advisory Council (National level)**

The weakness of Research Extension Liaison Committee (RELC) will be surmounted by this council having a decision making power and legal authority. This federal council

holds twice meetings a year. The first one will conduct an interim evaluation of research and extension on-going programs with discussion papers from regional and zonal advisory councils. The second one, held at the end of crop season, will review the performance of executed programs in research and extension, and give future direction and linkage arrangements. Before this meeting, reports from regional and zonal councils are to be submitted.

**Members:**

- 1) Chairman: Vice Minister, MOA
- 2) Co-Chairman: Deputy Director General, EARO
- 3) Secretary: Head, Extension Dep., MOA
- 4) Co-Secretary: Head, RECO of EARO
- 5) Head, Agricultural department, ESTC
- 6) Head, Regional Agricultural Bureau
- 7) Head, Coffee and Tea Development Authority
- 8) General Managers, NSIA/ NFIA/ ESE;AISE
- 9) VPRD, Alemaya Univ. of Agriculture
- 10) Development Bank of Ethiopia(DBE)
- 11) Coordinator, Research Coordination Unit, RABs

**2) Regional REF Linkage Advisory Council (Regional level):**

The research and extension system in each region is under one umbrella of Regional Agricultural Bureau, then, this council will be designated by Regional Government and supervised the same. The major functions are to plan collaborative programs between research and extension institutions, to review research findings, and to oversee the formulation of recommendations.

The meetings are to be held twice a year at the beginning and the end of crop season. The minutes of meetings will be submitted to Federal Linkage Advisory Council. This council at regional level is a large body, therefore, the establishment of a number of small working groups such as women farmers groups, farmers research groups, resource management groups, farming systems groups, etc. is recommended.

**Members:**

- 1) Chairman: Head, RAB
- 2) Secretary: Head, Extension Department, RAB
- 3) Co-Secretary: Coordinator, Regional Research Coordination Office
- 4) Head, Technical Departments, RAB
- 5) Farmers representatives (male &female)
- 6) Deans, Agricultural Colleges

- 7) Heads, Technology multiplication center
- 8) Representative, regional ESE
- 9) Representative, regional AISE
- 10) Directors, Research Centers (Centers of Federal, Regional & higher learning institutions)
- 11) Heads, Research-extension division of RC
- 12) Heads, Zonal Agricultural Department
- 13) Representative, Coffee and Tea Development Authority (CTDA),etc.

### **3) Research Center Based REF Linkage Advisory Council (Zonal level)**

Zonal Advisory Councils are to be more of research center based. They will be designated by Regional Linkage Advisory Council, and constituted by all the stakeholders at zonal level. Major functions are to review, prioritize, and approve research agendas with research review meetings, and to ensure effective and continuous interactions among farmers, DA, SMS, researchers and NGO staff through joint in-service training, seminars, workshops, panel discussions, field days, farmers' day, and joint field visits. The council will submit annual work plans and budget to Regional Council, and report on annual activities to Regional and Federal Council.

This council shall hold thrice meeting a year. The first one will be held before the crop season to review research programs and extension recommendations. The second one is to be a form of joint field trips to evaluate on-going research/extension programs in the zone, and to be assess feedback.. The third one at the end of the crop season will evaluate the executed research and extension programs during the year. Farmers' participation should be a centerpiece of these meetings.

#### **Members:**

- 1) Chairman: Head, Zonal Agricultural Department
- 2) Secretary: Head, Research Extension Division, Research Center(Federal/ Regional)
- 3) Director, Research Center(Federal/Regional)
- 4) Farmers representatives(male and female)
- 5) Head, Agricultural Colleges/Universities
- 6) Representative, zonal AISE; ESE
- 7) Leader, zonal extension team, AD
- 8) Commodity team leaders, AD
- 9) Head, Agricultural Economy Division, RC
- 10) Head, District Agricultural Office;
- 11) Representatives, DA and SMS/ Technical team

## Overview: Past and Present Agricultural Co-operative Societies

### Study Report, Dec. 2000

#### (1) Ethiopia

Co-operative development is not a new venture to Ethiopia. More than four decades were passed but without meaningful achievements. Modern co-operative societies had emerged involuntarily because it was government-driven. The feudal system introduced co-operatives through two consecutive legal acts: Decree No. 44 of the 1960, called the “Farm Workers Co-operative” and the 1966 “Co-operative Society Proclamation” No. 241/ 1966.

Until the socialist system leaders had seized power, there were 94 Multipurpose Co-operatives, 19 Thrift & Credits, 19 Consumers, 17 Hand craft & Small scale industries and other types of co-operatives functioning (Pilot Co-operative Development Study, 2000). It was documented that land tenure system, collateral requirement for credit disbursement, shortage of skilled manpower in the field and prevalence of dictatorship hampered genuine implementation of the above acts.

Different types of co-operatives were tremendously mushroomed and registered during the socialist system administration, 1974-1991. The enacted proclamation (No. 138/ 1978) greatly contributed to thousands of various co-operative societies to flourish across the country in line with the Soviet Union & Eastern Europe style. The failures attributed to the socialist economy of the co-operative promotion were taken as four major factors: firstly, membership refers to Peasant Associations, whose number lies between two and ten. Secondly, co-operative management and/or leadership were highly affiliated to politics and poorly organized and operate. Thirdly, unfair and regulated output price offer and grain provision on quota basis. Majority of the Multipurpose Agricultural Co-operatives were operating with zero or negative market margin, i.e. their existence was maintained through high government subsidy. Under the seventeen years command economy, Multipurpose Agricultural Co-operatives, especially producers co-operatives were the most favored farmer institutions. Fourthly, service rendering was mainly directed to the government rather than individual members of co-operatives. In the latter case, multipurpose agricultural co-operatives & producers co-operatives were entirely government apparatus: they were geared towards providing *all* the necessary input required (including military manpower) for warfront. All co-operative principles adopted by International Co-operative Alliance (ICA), were violated. The combined effect of these incidences accelerated the instant & immediate dissolving of Multipurpose- and Producers- Cooperatives after the declaration of mixed economic policy of the 1989.

The resultant effect was several properties of co-operatives were devastated and looted. Individuals, especially, co-operative leaders and officials at various positions, were

misappropriated accumulated capital (money) at hand or in the bank. In sum, all types of co-operatives formed during the socialist system governance were seriously suffered from within and outside pressures.

At present, the enactment of Agricultural Co-operatives Societies Proclamation No.85/ 1994 followed by Co-operative Societies Proclamation No. 147/ 1998 created a fertile ground for the restructuring and strengthening of all types of co-operatives previously established and also initiated the formation of new one.

## **(2) Oromia**

The Region had about 5,300 Peasant Associations(PA) with more than 2.52 million farmers in 11 Zones (excluding Borena Zone). Female farmers accounts for more than 9.64% of their male counterparts. Similarly, 1,562 Multipurpose Agricultural Co-operatives were found during the socialist system administration of the country. Five-year-report(1995-99) by OCPB in August 2000, indicates that 351 co-operative societies in the 12 zones of the Regional State are *restructured*, with 226,739 members and a capital of Birr 41,333.94 thousand, under the new Co-operative Act (No. 85/ 1994). The types of co-operative society restructured include Multipurpose Agricultural Co-operatives (94.59%), Irrigation Co-operatives(0.86%), Dairy Co-operatives(0.57%), Fishery Co-operatives(2.56%), and Sugarcane Producers Co-operatives (1.24%). In addition, 57 Primary- and 6 Secondary-(Union)-new co-operatives with member of 4,737 and a capital of Birr 9,921.10 thousand were formed under the same period. Out of these, Saving & Credit Co-operatives constitute about 16%, majority of them being urban based. The main activities of the co-operatives include input (e.g. fertilizer and seed) marketing, farm produce (cereals, pulses, oilseed, vegetables and fruits, milk and milk products, coffee, etc.) marketing and service rendering like flour-mill, mechanization and credit services.

The OCPB was established independently in 1997 (Proclamation No.15/ 1997) and its span of control is upgraded and increased to organize *all* types of co-operatives (Proclamation No.27/ 1999). The Bureau is entrusted to shoulder duties and responsibilities indicated below:

- 1) Organize, promote, and supervise co-operative societies at primary, union & federation.
- 2) Prepare rules and regulations for organizing and promoting of co-operative societies
- 3) Register and revoke certificate.
- 4) Provide audit and inspection services.
- 5) Prepare co-operative projects and plans.
- 6) Facilitate marketing for co-operatives.

- 7) Promote the culture of saving.
- 8) Monitor and evaluate the use of inputs & credit.
- 9) Promote co-operative education/ training and research.

To implement the aforementioned duties and responsibilities, the Bureau is organized at a three-tier organizational structure:

- 1) Regional Bureau (Head Quarter) with five technical departments and three support services.
- 2) 12 Zonal Departments with four technical teams and support services.
- 3) 180 District (Wareda) Offices with three technical teams and one support service.

### **(3) East Shewa Zone**

East Shewa Zone is the second smallest zone with an area of about 14,000 km<sup>2</sup>. It consists of 12 woredas. Nazareth, 100 km on asphalt road East of Addis Ababa, is the zone capital. The zone is very rich in water resources: rivers like Awash, Koka and others and lakes like Ziway, Langano, Shala, Abijata and others. The agro-climatic condition of the zone is tropical (20%), sub-tropical (74%) and temperate (6%).

According to the Population Projection Estimate, the zone has 1.8 million people, of which 28% are urban dwellers. About 52% (age group ranging between 15 to 64) of the population is economically active. The average family size of the zone, per household, is 4.8 (OPEDB, 2000).

There are 442 PAs, of which co-operatives operate in 310 of PAs and 121 Multipurpose Agricultural Co-operatives in the zone. In the zone, different types of co-operatives are undertaking diverse co-operative activities. Currently, there are 215 different types of co-operatives engaged with various entrepreneurial activities. The total members are 109,701, of which 100,373 (91.5%) are male members and the remaining balance, 9,328 (8.5%) are female members, with a capital of Birr 14.89 million. The type of co-operatives in this zone include Multipurpose Agricultural Co-operatives (56.3%), Sugarcane Producers Co-operatives (2.3%), Irrigation Co-operatives (7.0%), Fishery Co-operatives (5.1%), Dairy Co-operatives (0.5%), Butchery Service Co-operatives (0.9%) and Saving and Credit Co-operatives (27.9%).

In addition, there are three Unions (2 Grain and Input Marketing and 1 Vegetable Producer and Marketing) with a member of 40 primary co-operatives, which consists individual members of 10,014 males (84.1%) and 1,897 (15.9%) female with 1.61 million Birr capital.

(Summary of the Report: Overview by RCB, Dec. 2000)

**Fertilizer in Ethiopia (SG2000, Oct. 1998)****<Background>**

- (1) All the fertilizer is imported without any domestic production in Ethiopia.
- (2) All fertilizer imports before 1993 were under government control without private sector.
- (3) Fertilizer distribution to farmers is a major constraints due to poor road network.
- (4) Small-scale farmers, usually below 2.5 ha of land holders, are dominating in Ethiopian farming.
- (5) FAO fertilizer program in over 10 years' trial proved fairly good results on food crops.
- (6) The poor research-extension linkages prevented the introduction of new varieties to farmers.
- (7) In 1992, the government requested the World Bank to assist with Fertilizer Project into de-centralization and free market liberalization.
- (8) In 1993, fertilizer was sold with 20% of subsidy, that was decided to be removed progressively.
- (9) SG2000 Program in field plot was successful with high yield in maize and wheat in 1993.
- (10) In 1994, SG2000 approach was established as the extension system approach.
- (11) In 1995, the government implemented 40,000 plots (0.5 ha), with technical assist of SG2000. Financed by national treasury in 32,000 plots, SG2000 in 3,300 plots, FAO in 1,000 plots, and NGO in the rest plots.
- (12) In 1996, the government increased to 350,000 plots all financed by national budget.
- (13) In 1997, the plots covered were increased to 650,000 (Defaulter: less than 2%), while 2,500,000 plots in 1998 and 4,000,000 in 1999.
- (14) Farmers get credit for 0.5 ha of land, and the credit disbursed is in kind as seeds, fertilizer, and chemicals. Farmers must advance 25% as down payment at the time they receive the inputs. The rest must be paid before they can apply for a second loan. Farmers also pay the commercial bank interest on their loans.
- (15) **National Fertilizer Sector Project** was approved in 1995, and operated in Feb. 1996.
- (16) Closing date is Dec. 2000, and a second phase is requested by the government.
- (17) Project cost is US\$230 million.
- (18) IDA credit is US\$120 million. Disbursed up until Oct. 1998, US\$42 million.



**<National Fertilizer Sector Project>**

(1) Objectives: Sustainable growth in agriculture production and productivity to improve food security and reduce poverty.

(2) Major Component: Policy reform / Institutional strengthening / Human resource development / Promoting increased and efficient use of fertilizer / Addressing supply side constraints / Addressing soil fertility and environmental issues.

(3) Period : 1<sup>st</sup> phase; Feb. 1996 - Dec. 2000 / 2<sup>nd</sup> phase; 2001- 2005

(4) Budget (until 1999)

|   |                    |
|---|--------------------|
| <u>Capacity Building</u>                                | US\$5.87 million   |
| Institutional strengthening                             | US\$2.01 million   |
| Human resource Development                              | US\$3.86           |
| <u>Fertilizer demand &amp; supply</u>                   | US\$216.25 million |
| Promotion of fertilizer use                             | US\$ 2.03 million  |
| Fertilizer supply management                            | US\$214.22         |
| <u>Fertility Management/ Environmental Conservation</u> | US\$8.30 million   |

(Bio-gas; bio-fertilizer, *rhyzobia*; 8 soil testing labs to be build; environmental monitoring; other pilot study )

(5) Procedure of procurement:

**NFIA** (National Fertilizer Industry Agency): An independent body created by the government to oversee all aspects of the fertilizer sector from import to allocation with quality control, and to promote fertilizer use and soil fertility etc.

**ICU** (Input Coordinating Unit): organized at group level (3-15 farmers), village (PA) level, district (Wereda) level, zone level, and regional level.

- 1) **National Fertilizer Workshop:** all the 14 regions meet once a year as a three days workshop to consolidate the input requirements for the entire country, 4-5 months before the next cultivation, with participants of fertilizer importers, research, extension, MOA both central and regional, seed industry, MOP, MOF, Banks, Donors, NGOs, WB etc., chaired by NFIA.
- 2) **Regional Fertilizer Workshop** (Regional ICU): the main responsibility is to assure available inputs at regional level, and credit is negotiated banks for the requirement.
- 3) **Zonal ICU:** the input demand is taken to the region. They assist the farmers to set up tenders for the suppliers who join the bids. Timely delivery nearest to farm gate with the lowest price gives a bid winner.

- 4) **Wareda ICU:** They consolidate the all PA input demands, and the input demand is taken to the zone ICU. The members are the planning officer from District, head of extension, Bank managers, input retailers, other important persons. At harvest time, closely monitoring of loan payment is carried out.
- 5) **PA ICU / Group ICU:** the smallest unit is organized by 3-15 farmers' group. The leader or chairman collect 25% of down payment, and deposit in special bank account or payment account.. In PA ICU, agricultural extension worker (DA) is also a member of the unit. The unit has to collect and consolidate farmers demand for credit, collect the down payment, ensure the delivery on time to the correct beneficiaries, pay all the balance and deposit the funds in the bank. The ICU also acts as referee on dispute.

(6) Institutional Sub-system, committee, or program:

Soil Testing Service in field laboratories (NSS/ MOA/ NFIA);

Fertilizer Credit Committee (CPD/ NFIA);

Fertilizer Logistic Committee (NFIA/ MOT/ MOF/ MOA/ dealers);

Annual Dealer Training Program (NFIA/ MOA/ AISCO/ dealers);

Fertilizer trial and demonstration program in farmers plots;

PIA (Project Implementation Advisor) system;

(7) Progress of the Project(Oct. 1998):

- 1) Mid-term review completed Oct. 98. Second review is underway.
- 2) No fertilizer price control and no subsidy since 1996.
- 3) Private sector imports are rising (50% in 1998; 70% in 1999).
- 4) Foreign currency allocation is open and fair.
- 5) Private fertilizer trading, but cooperatives dominate.
- 6) All the fertilizer center by MOA closed.
- 7) Quality control strictly monitored and enforced by NFIA.
- 8) Input credit available to anyone who wishes. (98% recovery in 97)
- 9) Fertilizer prices up by 250% since 91 due to the subsidy removal.
- 10) Fertilizer sales:
 

|      |            |         |     |
|------|------------|---------|-----|
| 1991 | 110,000 t; | in cash | 0   |
| 1998 | 300,000 t; | in cash | 30% |
- 11) Fertilizer use:
 

|      |                |
|------|----------------|
| 1993 | 16% of farmers |
|------|----------------|

|                     |      |                  |
|---------------------|------|------------------|
|                     | 1998 | 25% of farmers   |
| 12) Food production | 1991 | 6.5 million ton  |
|                     | 1998 | 11.0 million ton |

13) EPA(Environment Protection Agency) annually assesses impact.

14) Annual field and household survey are held to assess productivity of crops with participation of SG2000.

15) Fertilizer is the center-price by food production campaign of the government and SG2000 extension program.

(8) Secured Credit:

The central government negotiates with the commercial bank for a lump sum of credit which takes into account the total credit demand for the inputs as worked out from the village- districts- zones- regions- and country. The government uses the country budget from the treasury as a mortgage to secure the bank loans negotiating for lower interest rate below 10%.

(Summary of the Report; Fertilizer in Ethiopia, Sep. 1998)

## Fertilizer in Oromia (NFIA, Nov. 2000)

### 1. Fertilizer Consumption Trend in Oromia

Fertilizer consumption has been kept increasing in Oromia region since the liberalization of market. It had shown increasing trend from 1991 to 1995, however, paced down from 1996 to 2000, as follows:

**Trend of Fertilizer Consumption in Oromia Region in 1991-2000**

| (1,000t) | 1991 | 92 | 93  | 94  | 95  | 96  | 97 | 98  | 99  | 2000 |
|----------|------|----|-----|-----|-----|-----|----|-----|-----|------|
| Oromia   | 62   | 75 | 119 | 124 | 134 | 131 | 99 | 120 | 132 | 140  |

Zonal consumption in the region from 1995 to 2000 shows that it is highly concentrated in three Administrative zones(Arsi, East and West Shoa), the quantities of which showed being 70%-54%.

**Zonal Trend of Fertilizer Consumption in Oromia in 1995-2000**

| No.               | Zone       | (1,000t) | 1995  | 1996  | 1997 | 1998  | 1999  | 2000  |
|-------------------|------------|----------|-------|-------|------|-------|-------|-------|
| 1.                | Arsi       |          | 26.5  | 24.0  | 24.5 | 27.2  | 23.0  | 22.7  |
| 2.                | Bale       |          | 3.5   | 3.9   | 3.2  | 6.5   | 8.5   | 5.0   |
| 3.                | Borena     |          | 0.1   | 0.3   | 0.2  | 0.4   | 0.7   | 1.3   |
| 4.                | E. Hararge |          | 5.7   | 5.4   | 2.8  | 4.5   | 7.6   | 4.5   |
| 5.                | W. Hararge |          | 0.5   | 1.8   | 1.0  | 2.6   | 4.2   | 3.6   |
| 6.                | Ilubabor   |          | 1.8   | 2.5   | 1.7  | 3.0   | 3.5   | 3.8   |
| 7.                | Jimma      |          | 10.7  | 9.5   | 6.3  | 6.2   | 8.8   | 8.9   |
| 8.                | E. Shoa    |          | 37.8  | 32.6  | 23.2 | 21.1  | 19.6  | 22.3  |
| 9.                | N. Shoa    |          | 5.8   | 5.3   | 6.2  | 8.3   | 9.5   | 8.3   |
| 10.               | W. Shoa    |          | 29.8  | 32.3  | 19.2 | 24.7  | 29.4  | 30.9  |
| 11.               | E. Welega  |          | 9.5   | 9.6   | 7.1  | 9.3   | 10.0  | 14.3  |
| 12.               | W. Welega  |          | 2.6   | 4.2   | 3.5  | 5.7   | 7.1   | 14.1  |
| Oromia Total      |            |          | 134.4 | 131.4 | 98.8 | 119.7 | 131.7 | 139.6 |
| Three Major zones |            |          | 94.1  | 88.9  | 66.8 | 73.1  | 71.9  | 75.9  |
| (%)               |            |          | 70%   | 68%   | 67%  | 61%   | 55%   | 54%   |

### 2. Fertilizer Demand and Supply in Oromia in 2000

Weather conditions, supply of product, input and output prices, credit, fertilizer knowledge and experiences of farmers etc. are the major factors that affect fertilizer consumption. In this context the situation of fertilizer consumption can be seen further in the year 2000.

Rainfall situation has an implication on farmers decision whether to use fertilizer or not. Generally shortage of Belg rain was observed in East Hararge, West Hararge, Bale, Borana, North Shoa and West Shoa zones.

As to fertilizer knowledge, although the region consumes around half of the yearly national intake, there still remains a wide valley unbridled to meet the national recommendation level and/or even to reach the low user areas of the region. Fertilizer marketing survey has indicated that 72% of the not user farmers interviewed have never used chemical fertilizer (OESPO; 1999).

Farmers experience in most cases is to avoid risk. When weather conditions are unreliable, some farmers are even discouraged to use fertilizer because of the low cost-benefit ratio. And credit availability is also one of the factors that affect fertilizer consumption.

The fertilizer demand for Oromia region was 176,800 t , while the achievement being 149,100 t or 84% of the target in the total 12 zones of the region. Up to Sep. 2000, about 139,600 t or 93.6% of the supplied fertilizer has been sold to the farmers in the region. Three zones (Arsi, East Shoa and West Shoa) alone accounted for 75,900 t or 54% of total consumption in the year 2000.

### **3. Review of Agricultural Extension Services and Fertilizer Promotion Activities**

Agriculture is the base of national as well as regional economy and majority of the people depend on it for their livelihood. The federal and regional government strategy is a broad based and Agriculture Development Led Industrialization. The strategy gives emphasis on agricultural development especially on productivity improvement of the small holder agriculture.

In keeping this strategy, National Extension Intervention Program (EPP) was launched in 1994 with the objective of attainment of self-sufficiency in food production and pursuit of a global approach to the development of agriculture. The program focuses on the diffusion of a simple available technology package within small holder agriculture. This package comprise fertilizer, improved seed, credit and close & strong extension services to farmers. Earlier it was started in the high rainfall areas and later enlarged in its scopes to cover large number of farmers in Oromia region as it does in other regions of the country. The widespread introduction of Extension Management Training Plots to disseminate the improved technologies has resulted in the increased productivity of food crops as well as improved balance of fertilizer use.

Before the launch of EPP, out of the total regional fertilizer consumption, 90% was DAP(di-ammonium phosphate). Urea was consumed in small quantity. The balance of urea and DAP consumption is improving from time to time and the former reached 34% in 2000.

In Oromia region the consumption of urea has increased from 13,160t in 1994 to 47,510t in 2000. As opposed to urea, DAP consumption was high in 1994, 110,440t, and lower in 2000, 92,110t. The high price of fertilizer and uncertainty of weather conditions may have discouraged farmers from using more DAP fertilizer. The relatively lower price of urea and expansion of EPP from time to time have obviously increased the use of nitrogen fertilizer in the region.

As a result of the expansion and wide dissemination of Extension Management Training Plots, the striking out-come was observed in the cereal productivity in the past five years as the table below. Farmers were able to double or even triple yields for major staple food crops such as maize, sorghum, wheat and teff.

#### **4. Overview of Agricultural Credit Extended for Fertilizer Purchases**

Agricultural production is basically of a small-holder subsistence nature in the country in general particularly in Oromia. The small holder farmers have usually encountered shortage of cash during crop season. Therefore, agricultural credit is a major factor for sustaining and promoting fertilizer use in all the zones of Oromia.

The Development Bank of Ethiopia(DBE) had long been involved in extending agricultural input credit to the farming community in Oromia region. However, it had been reported that poor credit recovery resulted in outstanding credits of 140million Birr at DBE on the national level which adversely affected the bank's liquidity (FAO report in1997). It has been reported that the recovery ratio declined to 53% in 1990, 37% in 1991, and only 15% in1992. Default increased sharply following the collapse of producers co-operatives due to the market liberalization in March 1990.

The credit availability to the farming sector has improved considerably since 1994, when Commercial Bank of Ethiopia(CBE) become involved in the extension of agricultural input credit along with DBE. In 1994, the two banks extended fertilizer loan of over 182 million Birr, more than three times amount, which was disbursed in 1993 at national level. This is believed to be one of the major reasons for sharp increase in the sales of fertilizer. In 1994, credit disbursement in Oromia were 138 million Birr.

Since 1994, the government (both of federal and regional levels) has taken measure to improve the loan payment by establishing Input Coordination Unit(ICU) at all the levels up to beneficiary farmers in which the administrators, agricultural department staffs, input suppliers and credit suppliers were taking part. Nevertheless since 1997 the ICU was modified in Oromia region, where input suppliers and credit suppliers were excluded from the membership.

The fertilizer loan recovery was restored to more than 90% in 1994-1996, however, the

decline due to drought damage in 1997 has not returned to the trend before 1996 as follows:

**Fertilizer loan recovery in 1994-1999**

| <i>Fertilizer loan recovery(%)</i> | <i>1994</i> | <i>1995</i> | <i>1996</i> | <i>1997</i> | <i>1998</i> | <i>1999</i> |
|------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Oromia region total                | 93%         | 100%        | 94%         | 85%         | 87%         | 84%         |
| East Shoa zone                     | 95%         | 96%         | 83%         | 71%         | 88%         | 87%         |

Up to 1995, the banks extended input credit to the farmers through service co-operatives and peasant associations or farmer groups. Since the beginning of 1996, loan agreement was signed between the banks and regional state council, in which the regional state is responsible for the repayment of the loan and there would not be credit risks for the banks in defaults. The local government officials(administrators, agricultural and co-operative department staff) are involved with the screening of borrowers applications and endorse them as they are fully responsible for follow-up of repayment collection.

**5. Fertilizer Sector Constraints and Proposed Countermeasures**

**<Constraints>**

- 1) Delayed delivery due to transport facilities and poor road conditions
- 2) Demand forecast system and Bidding system
- 3) High fertilizer price, and much difference between Belg and Meher season
- 4) Monopoly nature of fertilizer market without genuine competition among suppliers
- 5) Erratic weather condition, lack of rainfall in Belg season, and crop failure
- 6) Over burdening of Development Agents(DA)
- 7) Lack of sustainable rural credit institutions

**<Proposed Countermeasures>**

- 1) Improvement of delivery system with enough stores (sales depot) in the village
- 2) Evaluate and checking system by all the tender sheets
- 3) Reschedule recovery system for defaulters who are suffering from crop failure due to drought.
- 4) To promote co-operative system for EPP and rural saving and credit
- 5) Establishment of co-operative bank

(Summary of the Report: Fertilizer in Oromia by NFIA, Nov. 2000)